

Figure 1

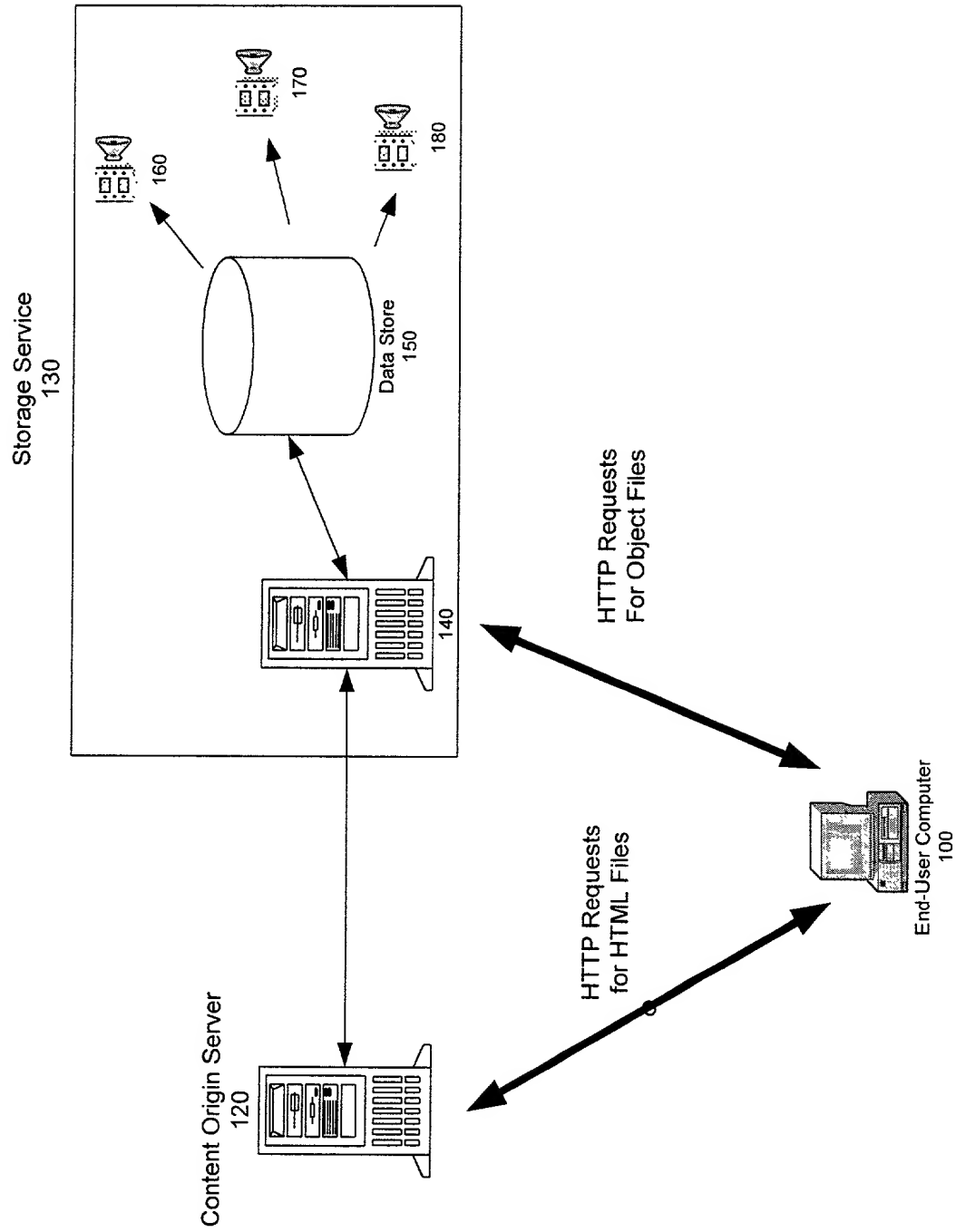


Figure 2

FIG. 3 is a block diagram of a system architecture for file upload/download operations. The system includes a Load Balancing Fabric (310) connected to Distributed Object Storage Managers (DOSM 1, DOSM 2, ..., DOSM "n") via a Distributed Object Storage Managers (320) block. These managers are connected to an Interconnect Fabric (330), which in turn connects to Intelligent Storage Nodes (Storage Node 1, Storage Node 2, ..., Storage Node "n") via a block labeled 340. The entire system is labeled 300.

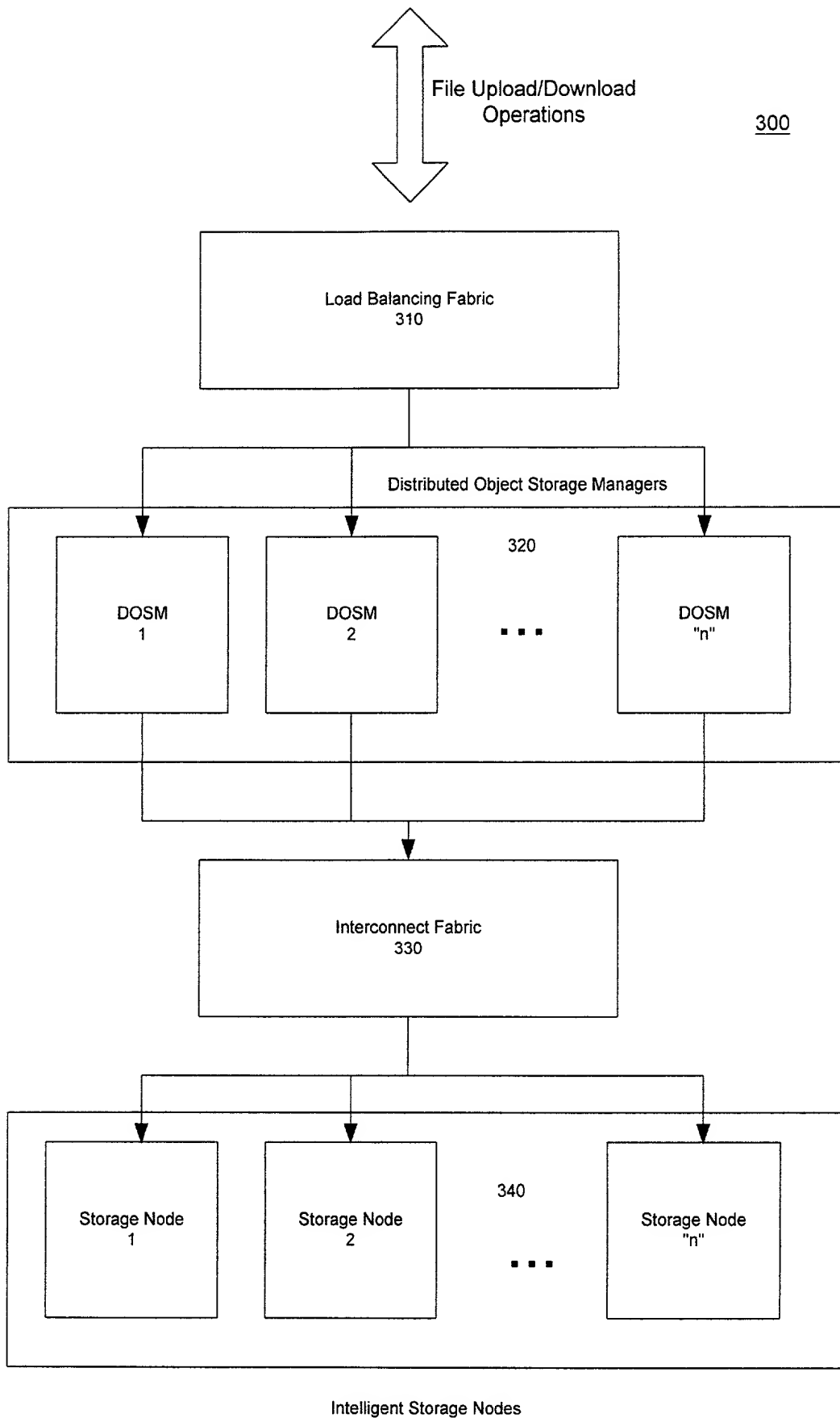


Figure 3

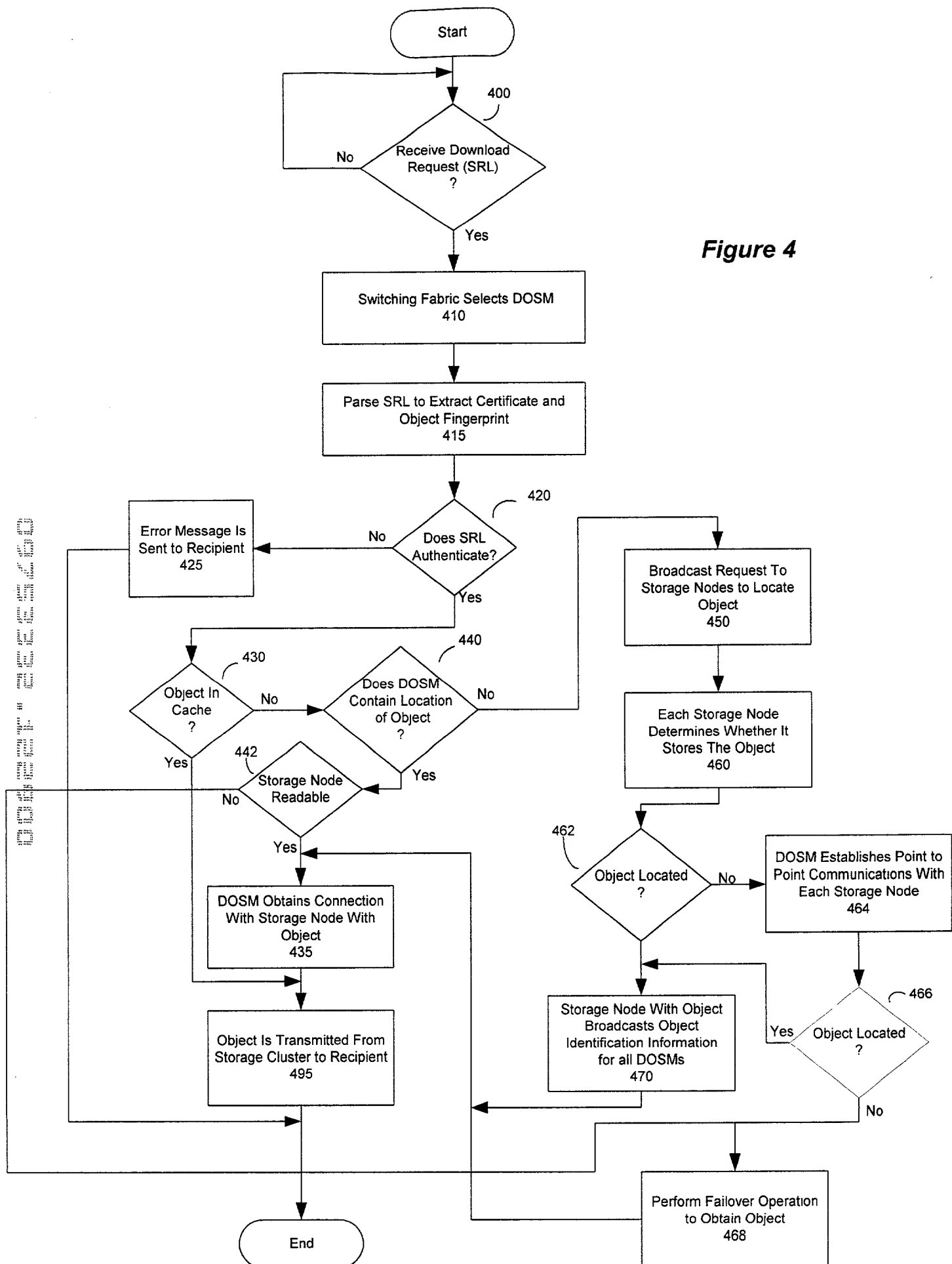


Figure 4

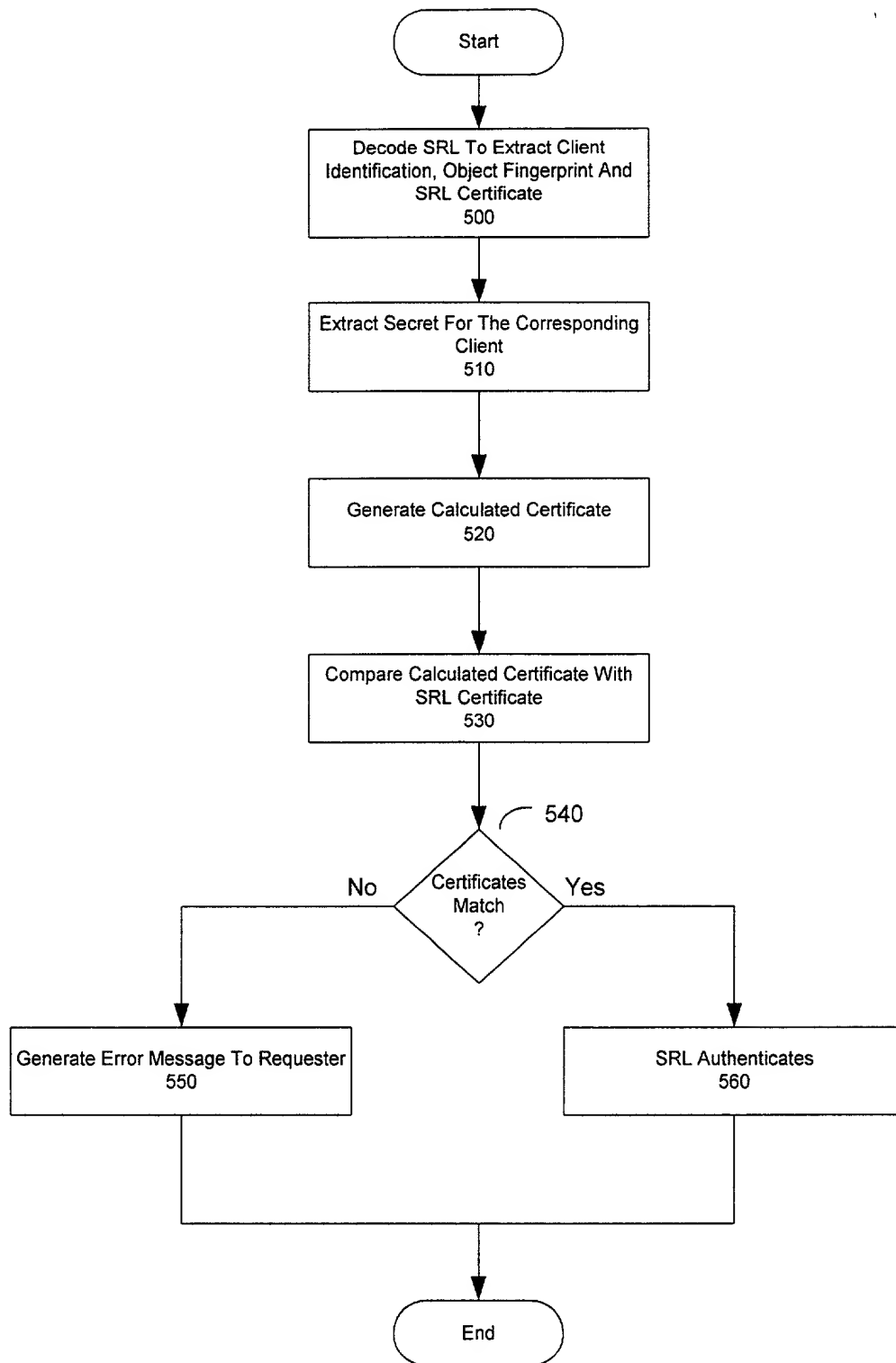
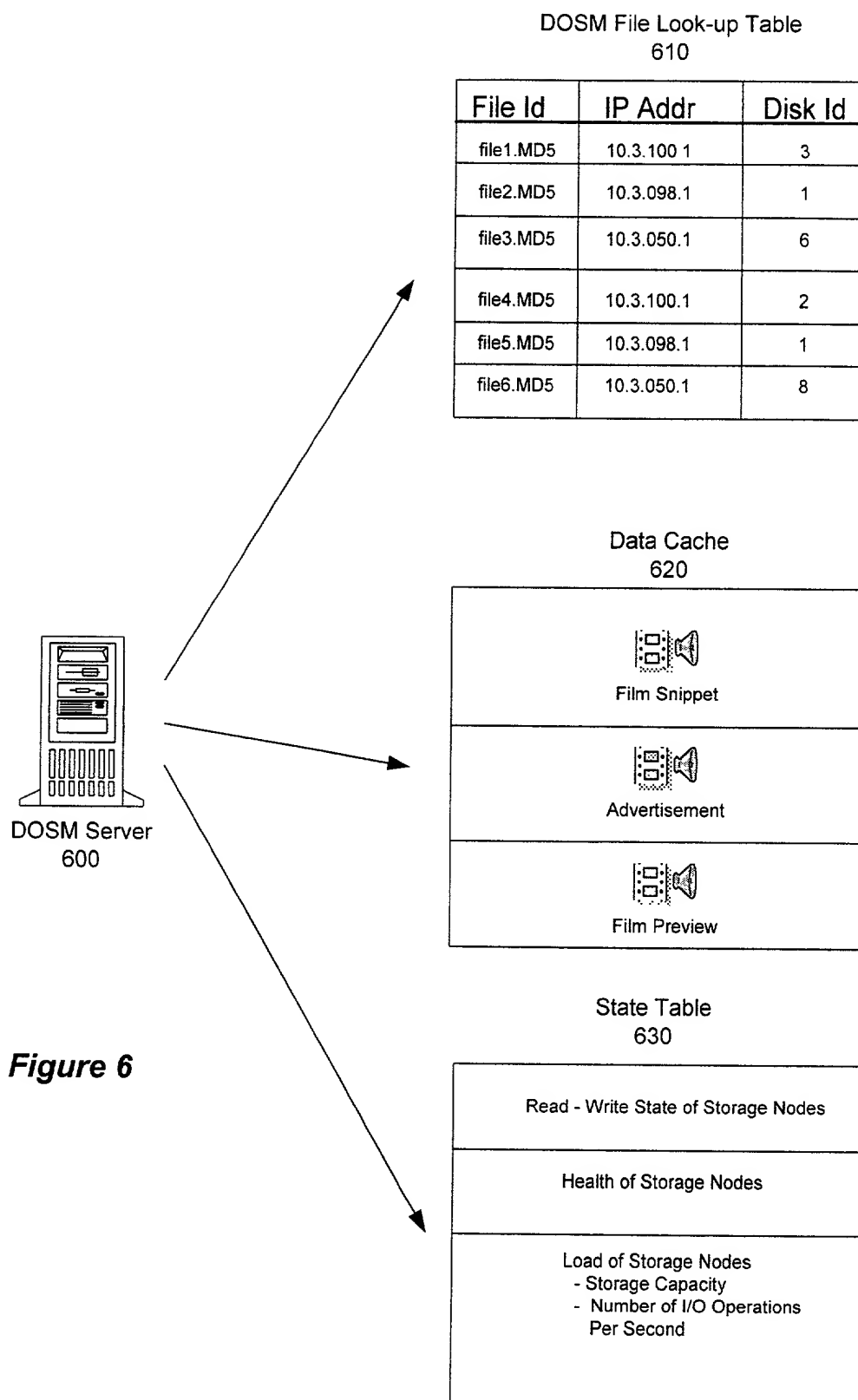


Figure 5



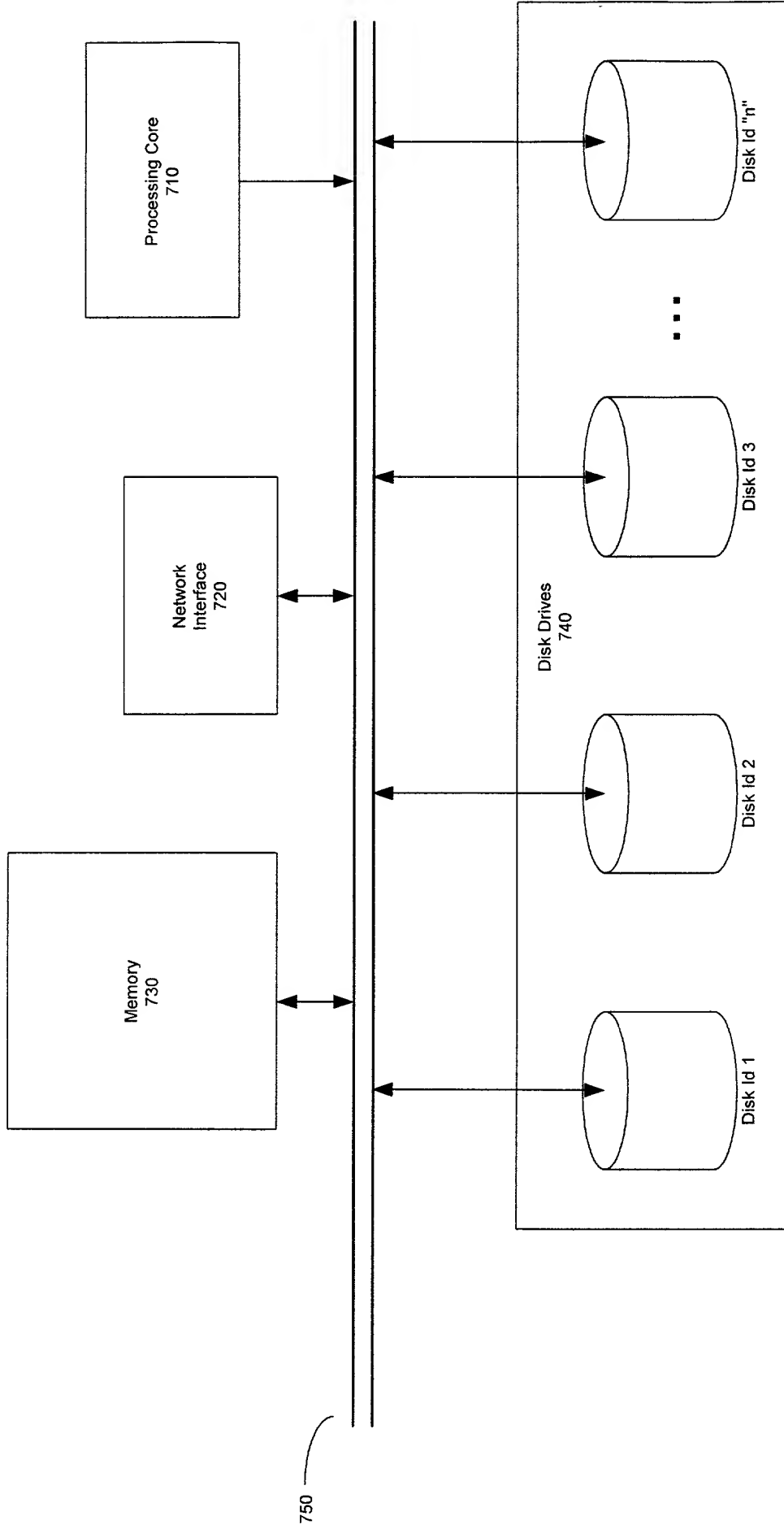


Figure 7

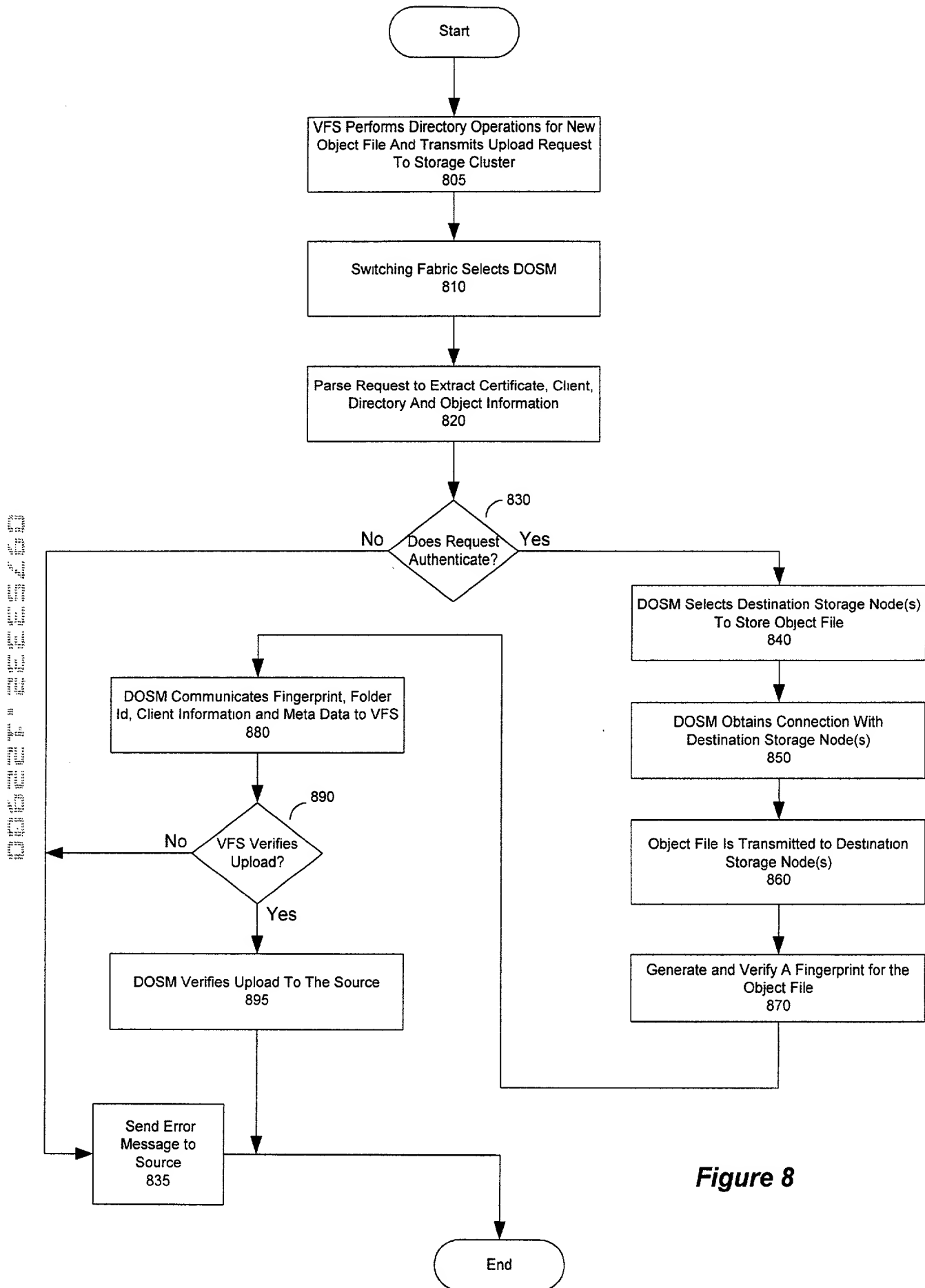


Figure 8

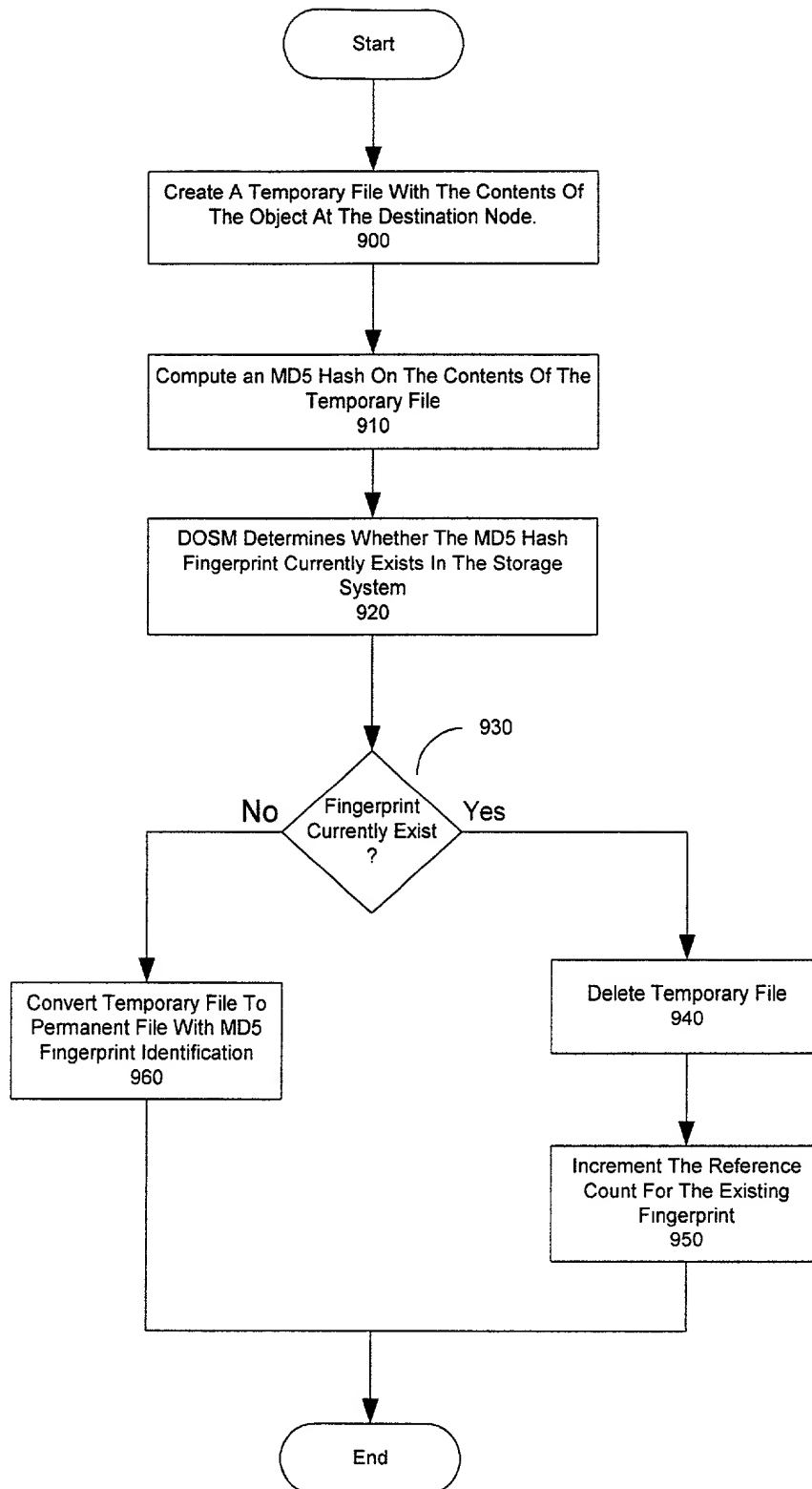


Figure 9

File Upload/Download Operations

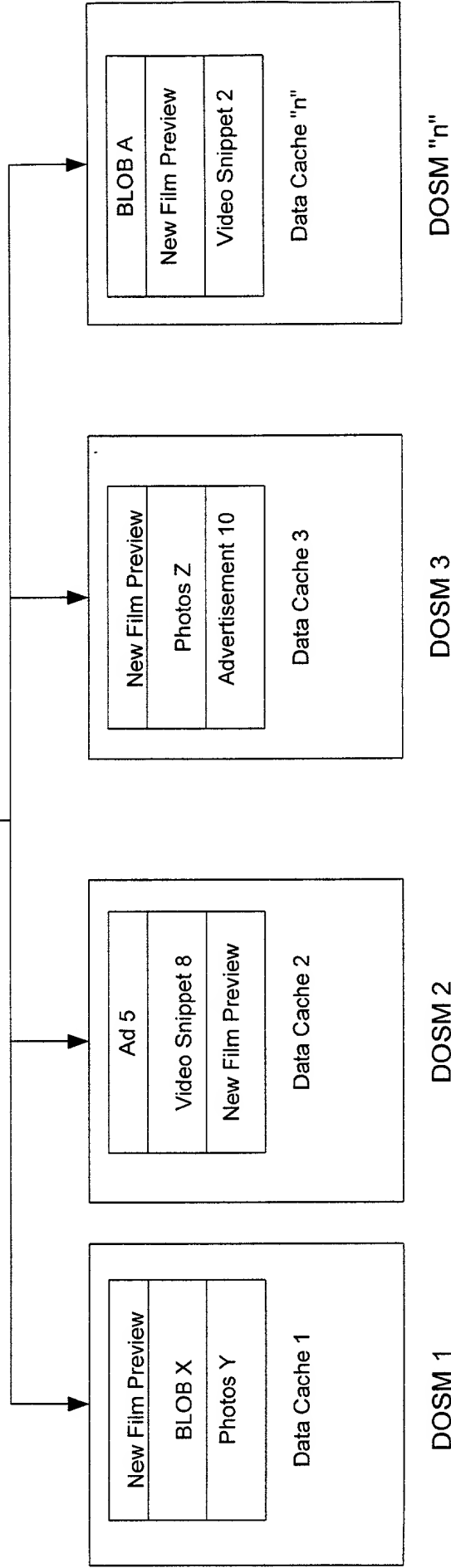
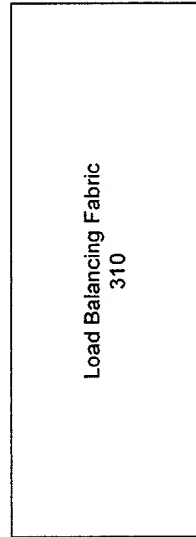
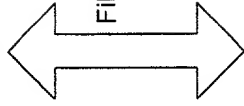


Figure 10

FIG. 11 is a block diagram of a distributed directory system 1100. The system 1100 includes a plurality of distributed directory managers 1110 and a plurality of distributed directories 1120. Each distributed directory manager 1110 is connected to a corresponding distributed directory 1120. The distributed directory managers 1110 are also connected to each other, and the distributed directories 1120 are also connected to each other. The system 1100 is configured to receive HTTP directory operation requests and to process these requests using the distributed directory managers 1110 and the distributed directories 1120.

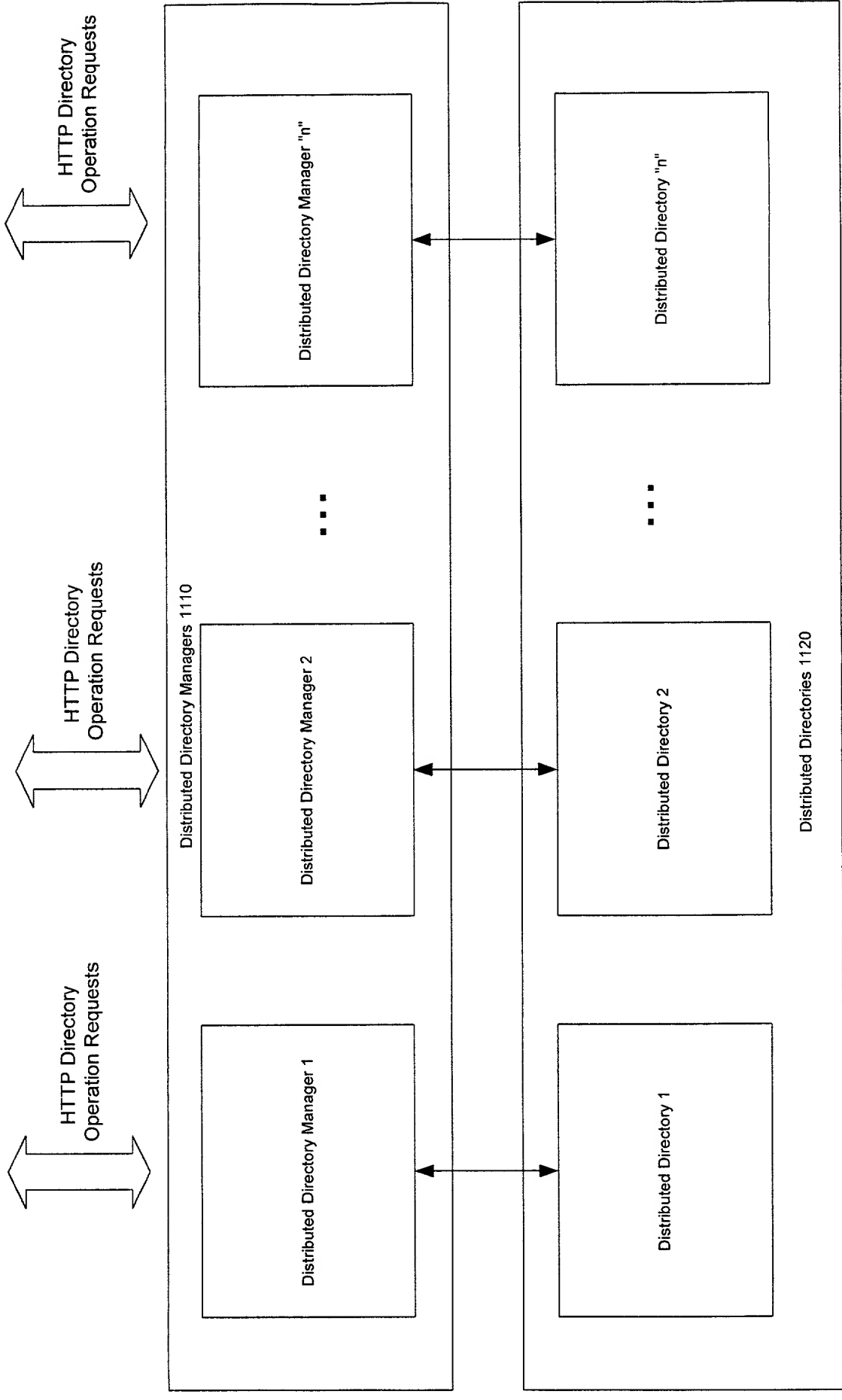


Figure 11

Customer Table

	Customer Name	Customer Reserved Fields
	Customer A	[Customer stores data ...]
	Customer B	[Customer stores data ...]
	Customer C	[Customer stores data ...]
	Customer D	[Customer stores data ...]

1200

Folder Table

Customer Id	Folder Id	Folder Parent Id	Metadata
3	2	-	[Reserved]
3	100	2	[Reserved]
3	251	2	[Reserved]
3	166	251	[Reserved]

1210

File Table

Customer Id	File Handle	Folder Id	Folder Parent Id	Metadata
3	52.MD5	100	2	[Reserved]
3	55.MD5	100	2	[Reserved]
3	99.MD5	166	251	[Reserved]
3	67.MD5	166	251	[Reserved]

1220

Figure 12

FIG. 13A is a flowchart illustrating a process for handling directory operations. The process begins at a Start node, leading to a decision diamond 1300: "Receive Directory Op Request?". If the answer is "No", the process loops back to the Start node. If the answer is "Yes", the process proceeds to a process box 1310: "Parse Request to Extract Certificate, Client Information, Operation Code and Arguments". From 1310, the process moves to a decision diamond 1320: "Does Request Validate?". If the answer is "No", the process proceeds to a process box 1325: "Send Error Message To Requester". If the answer is "Yes", the process moves to a decision diamond 1330: "Operation Code?". From 1330, the process moves to a series of decision diamonds: 1340: "Open Folder?", 1350: "Move Folder?", 1360: "Create Folder?", and 1370: "Move File?". Each of these diamonds has a "Yes" path leading to a corresponding process box (1345: "Access File And Folder Tables To Extract File Ids And Sub-Folder Ids", 1355: "Revise Folder Table Entries To Reflect New Location", 1365: "Add Entry For New Folder In Folder Table", and 1375: "Revise File Table Entries To Reflect New Location") and a "No" path leading to the next decision diamond. All "Yes" paths (1345, 1355, 1365, 1375) lead to a process box 1390: "Return Arguments To Requester". The "No" path from 1370 leads to a process box 1325: "Send Error Message To Requester". Both 1325 boxes lead to an End node. A label "(To Figure 13B)" is located at the bottom right of the diagram.

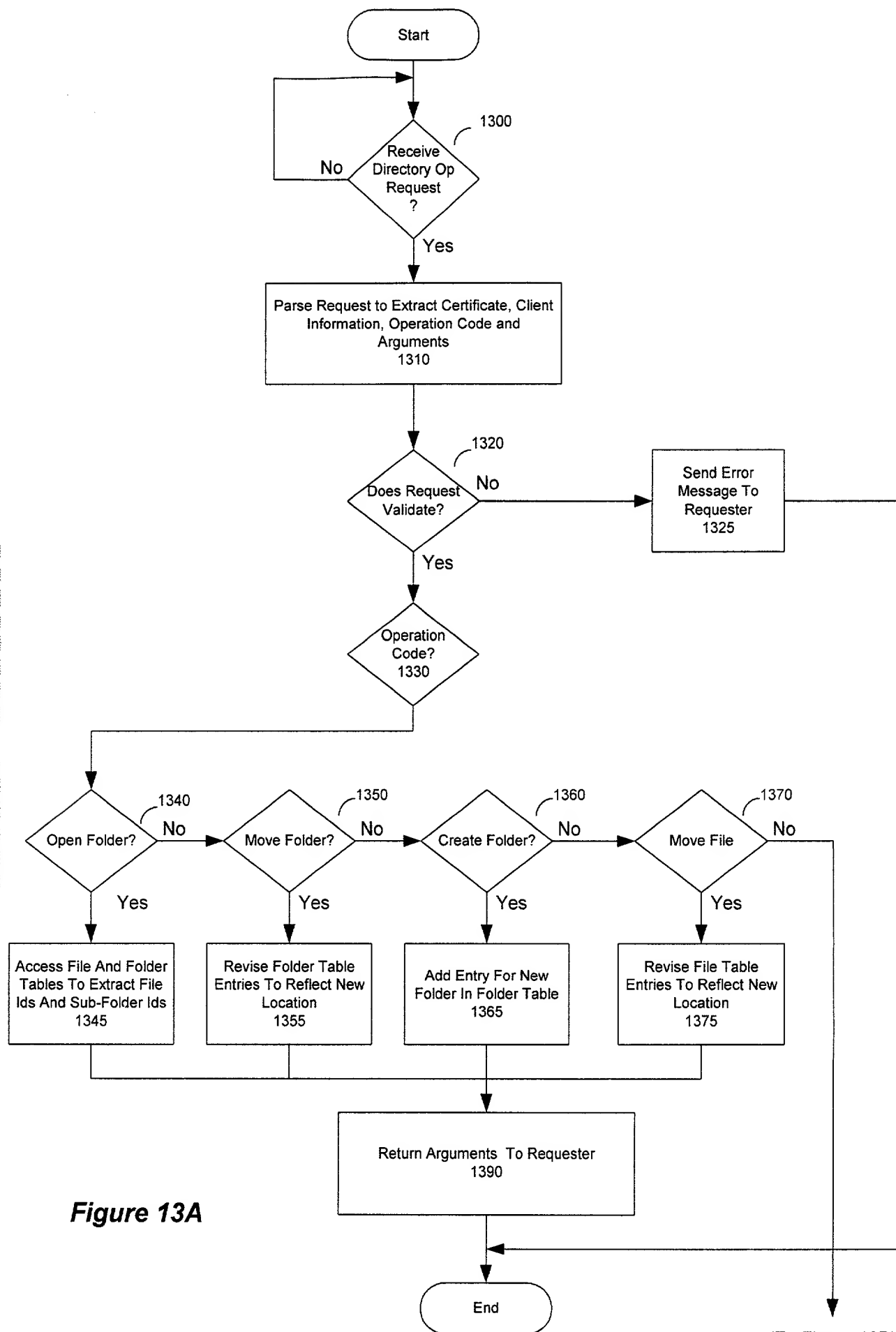


Figure 13A

(To Figure 13B)

(From Figure 13A)

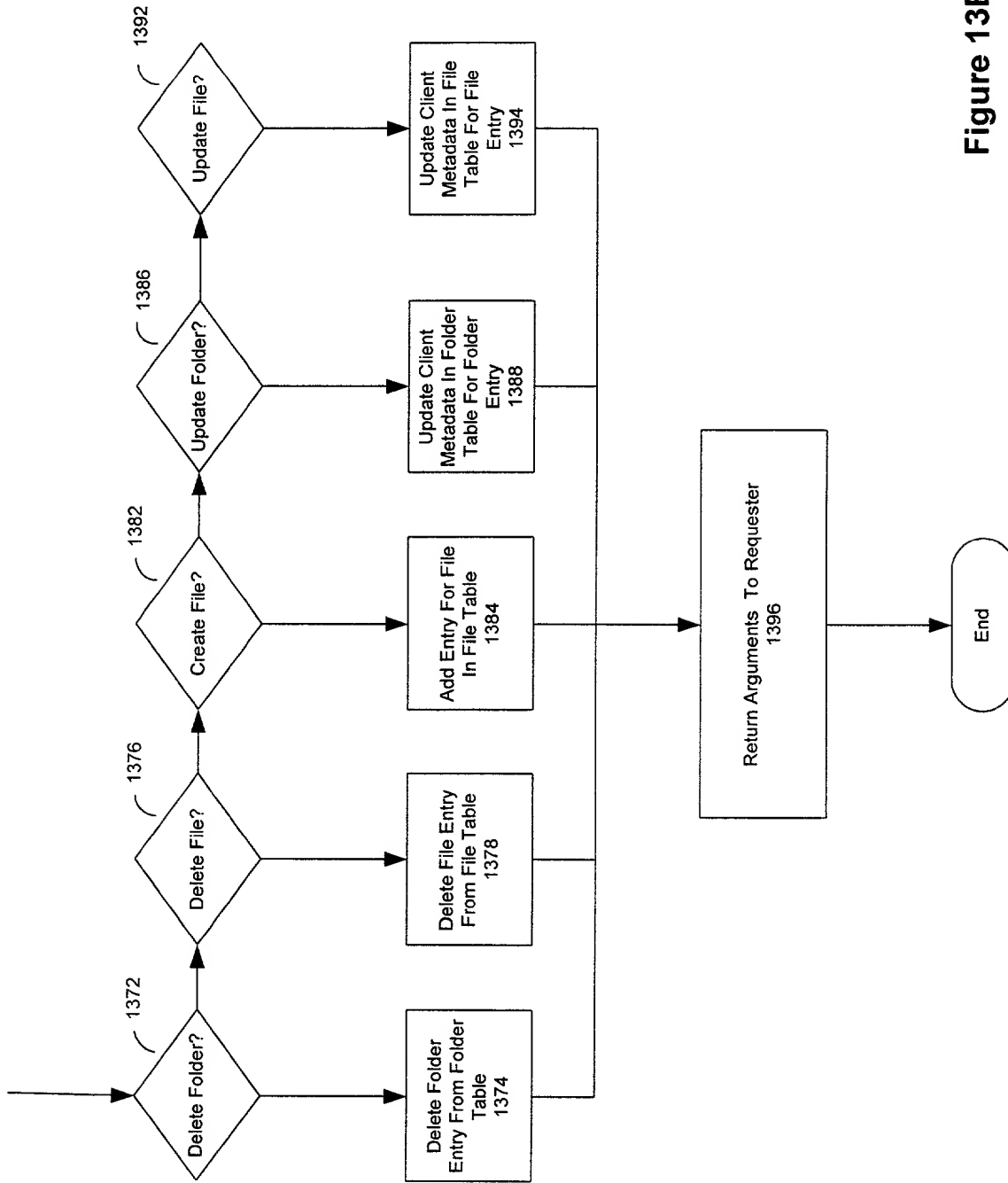


Figure 13B

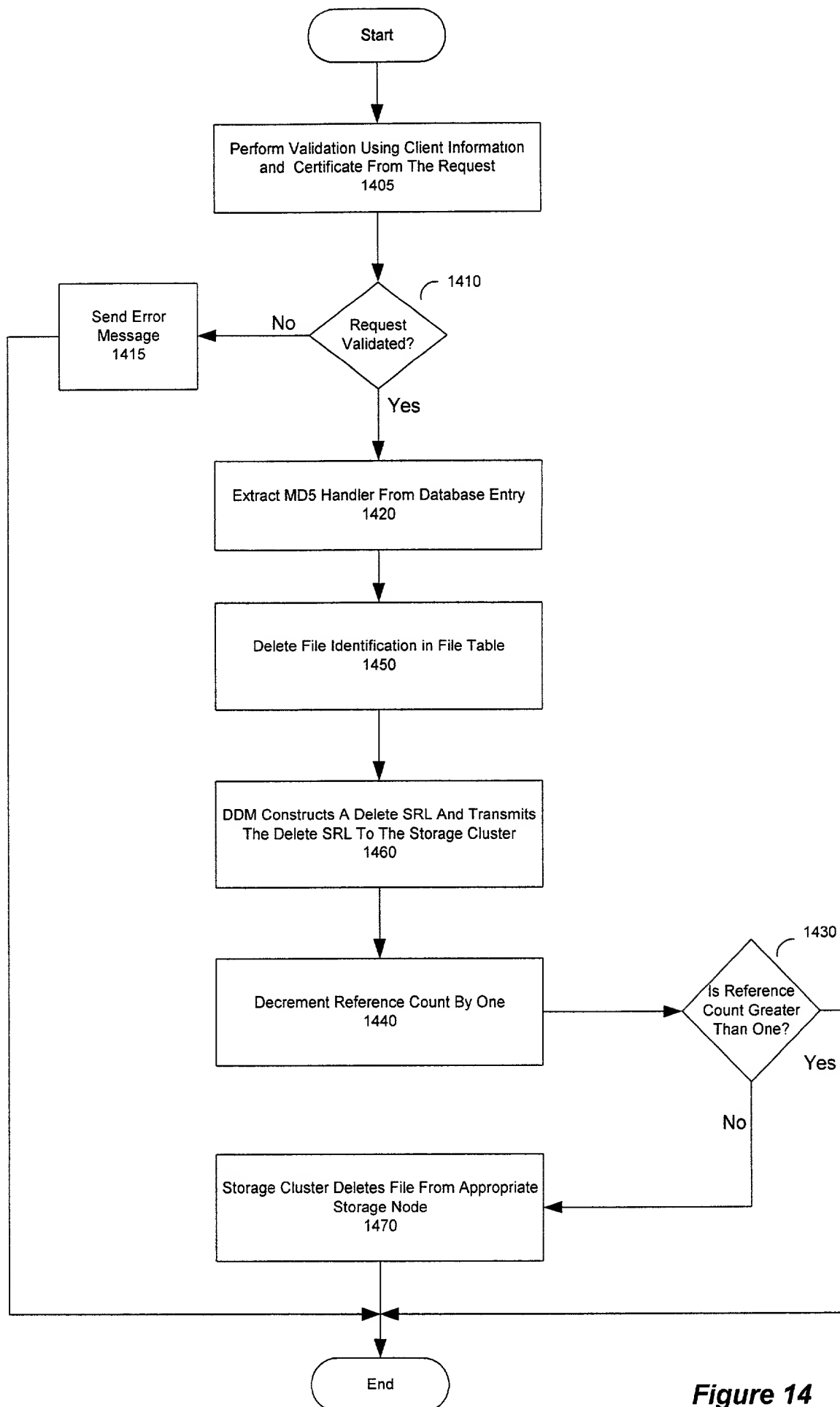


Figure 14

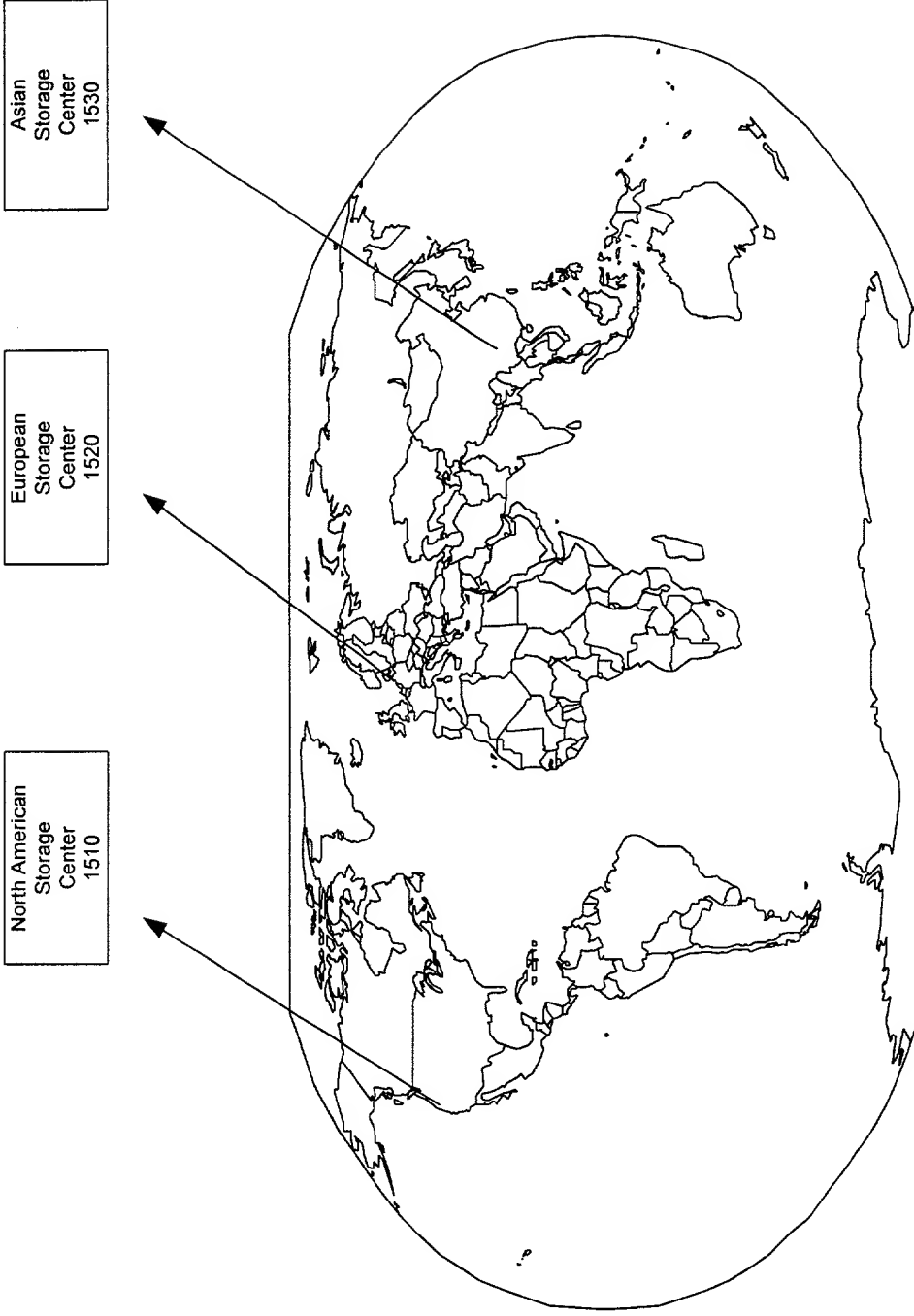


Figure 15

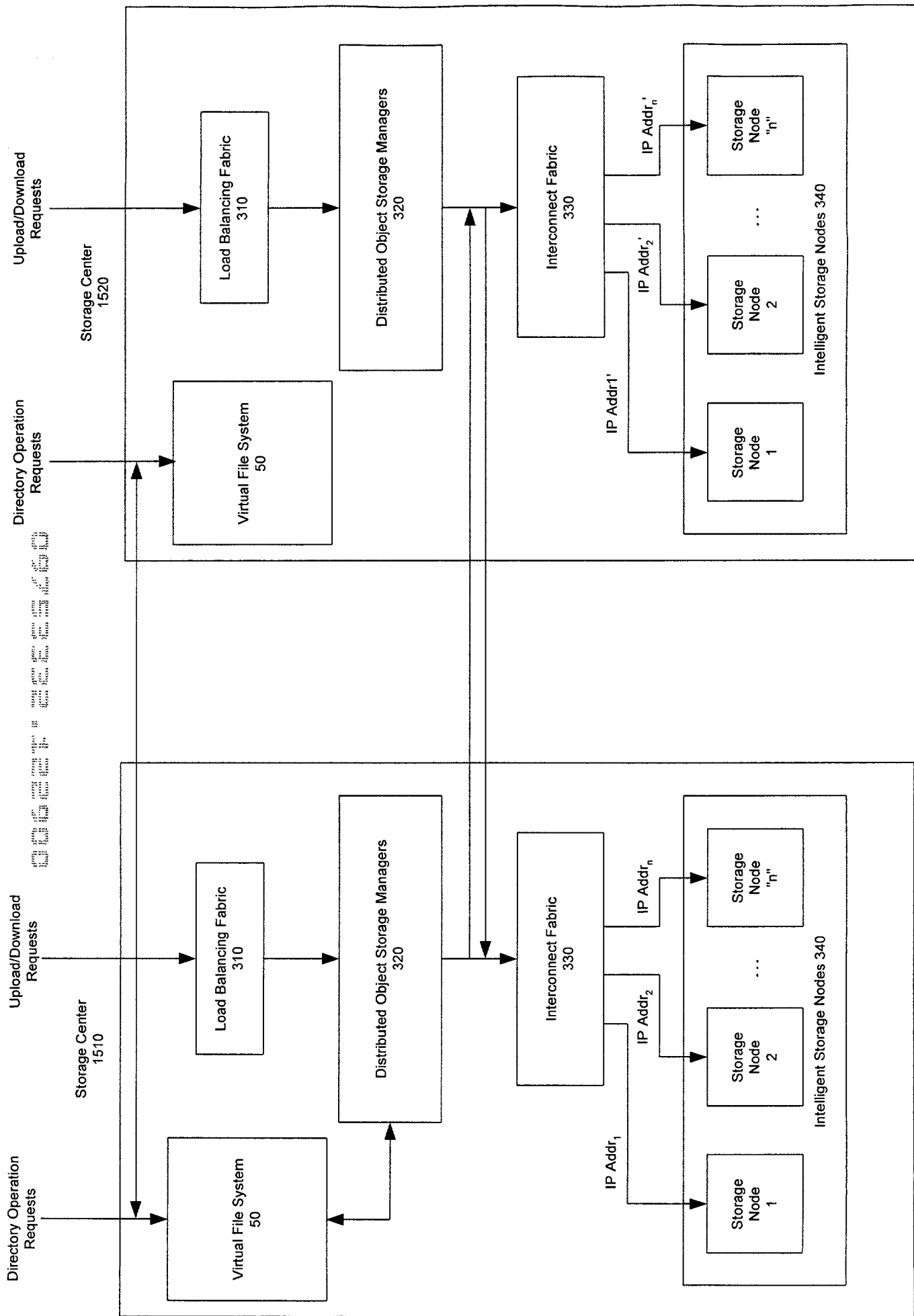


Figure 16

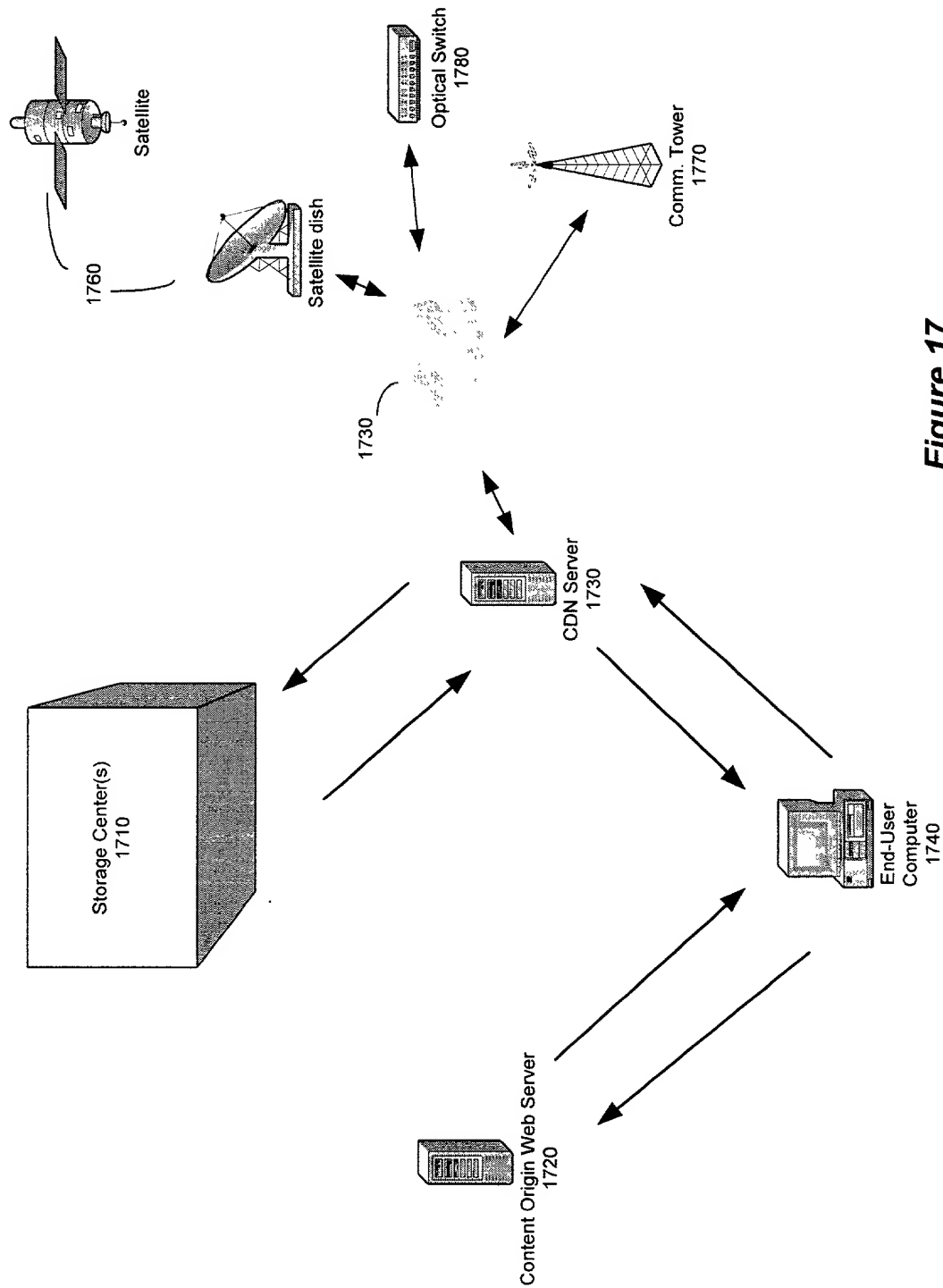


Figure 17

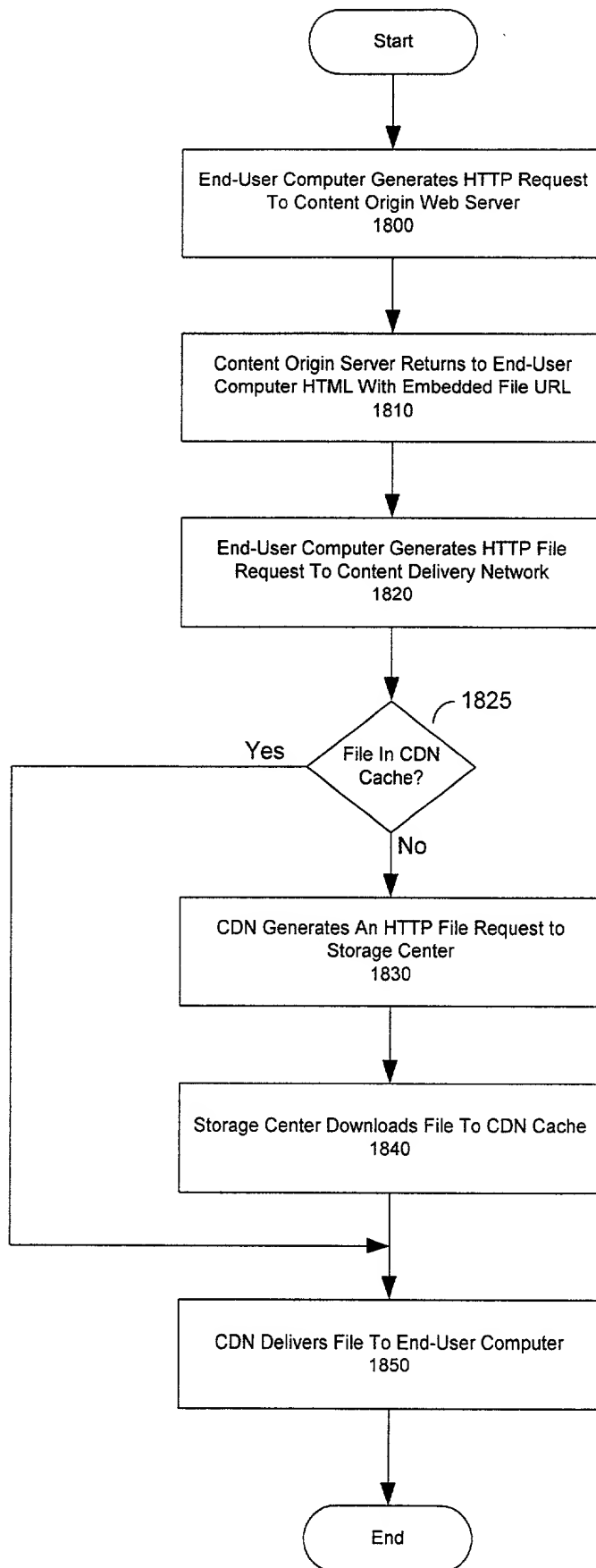


Figure 18

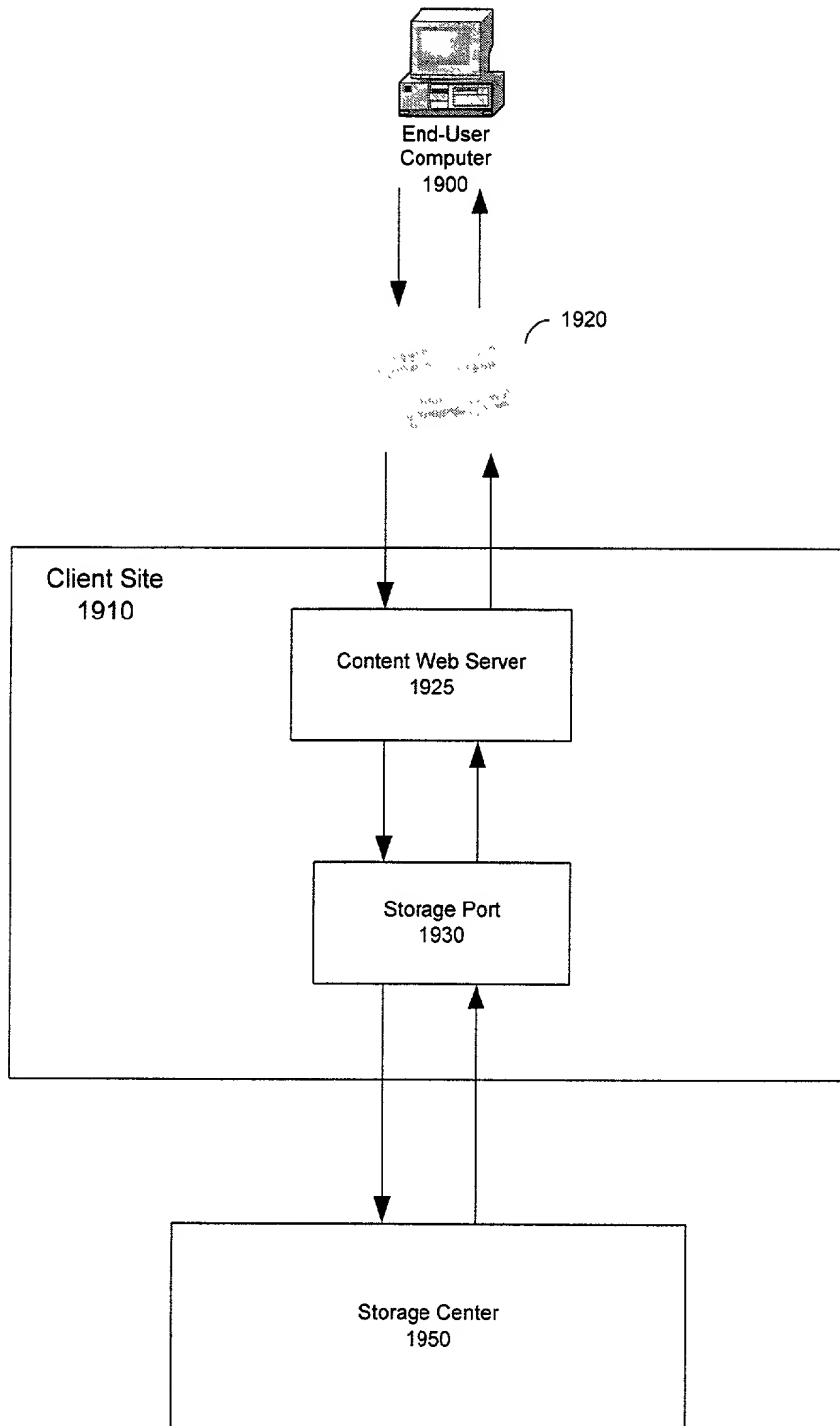


Figure 19

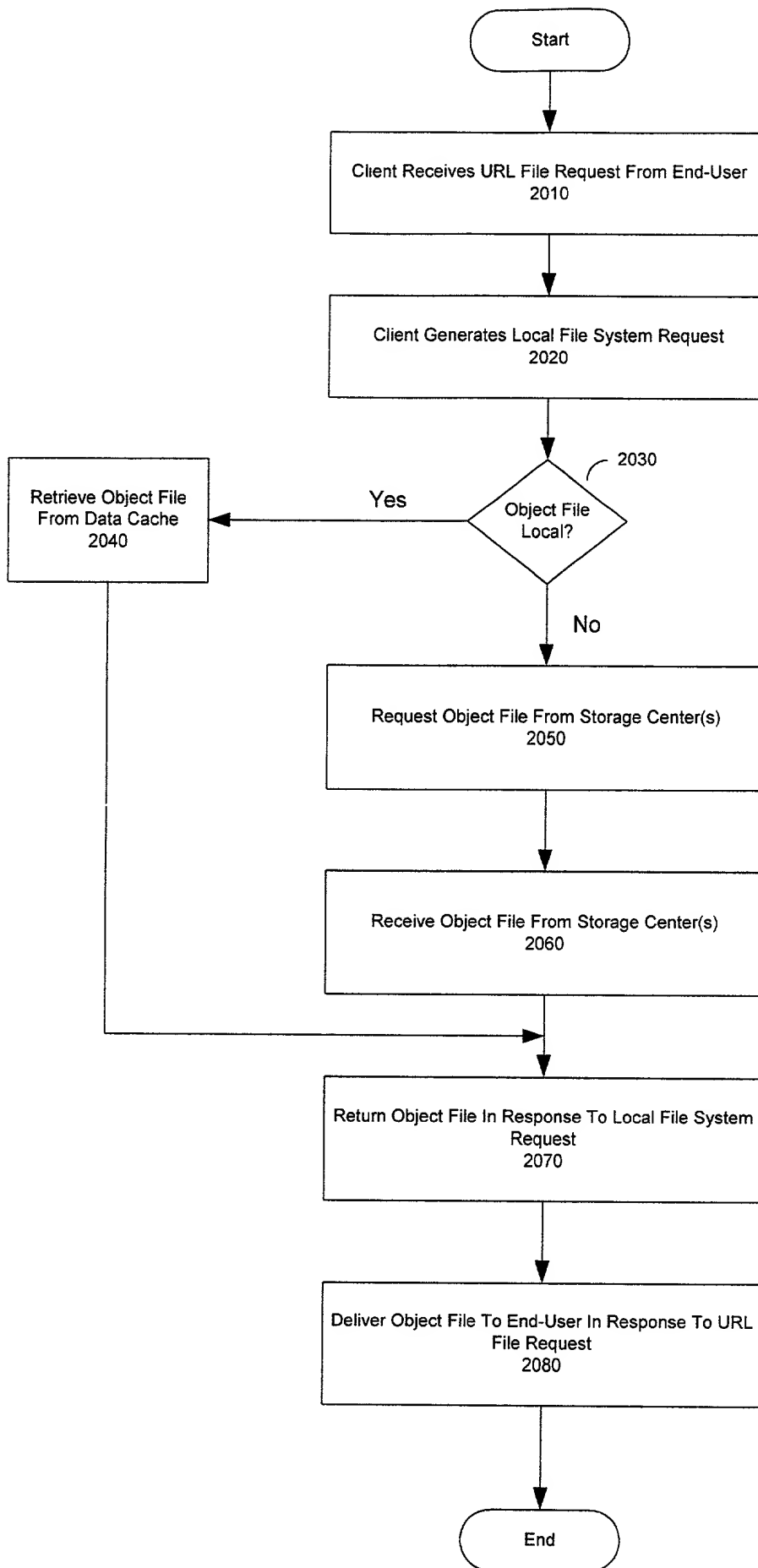


Figure 20

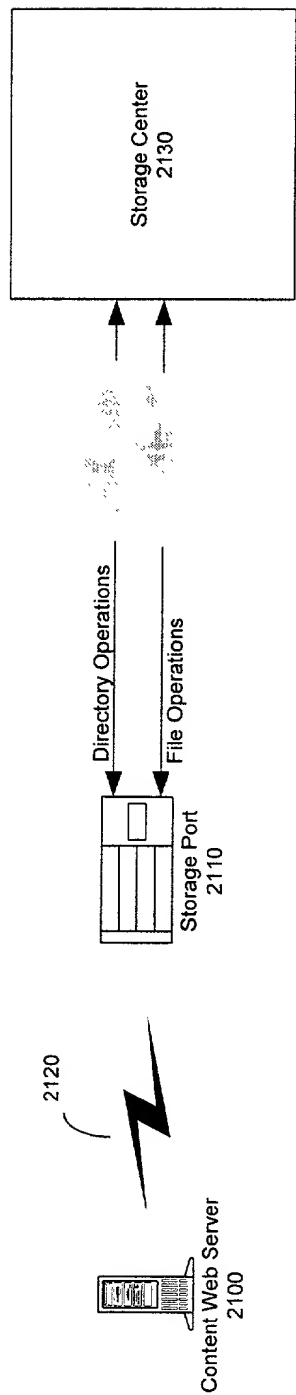


Figure 21a

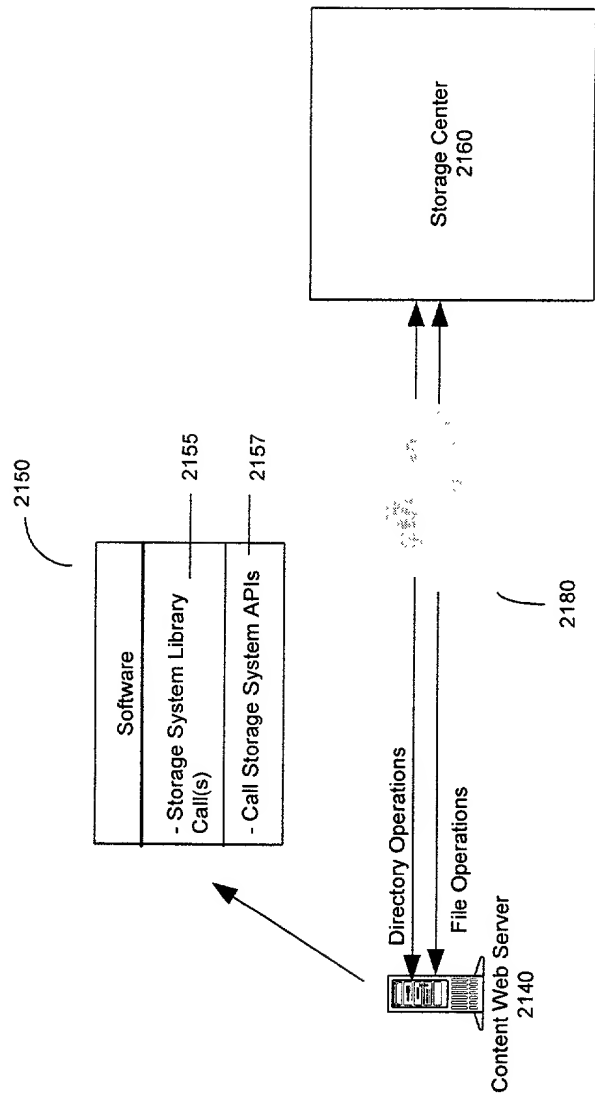


Figure 21b

Storage Port
2200

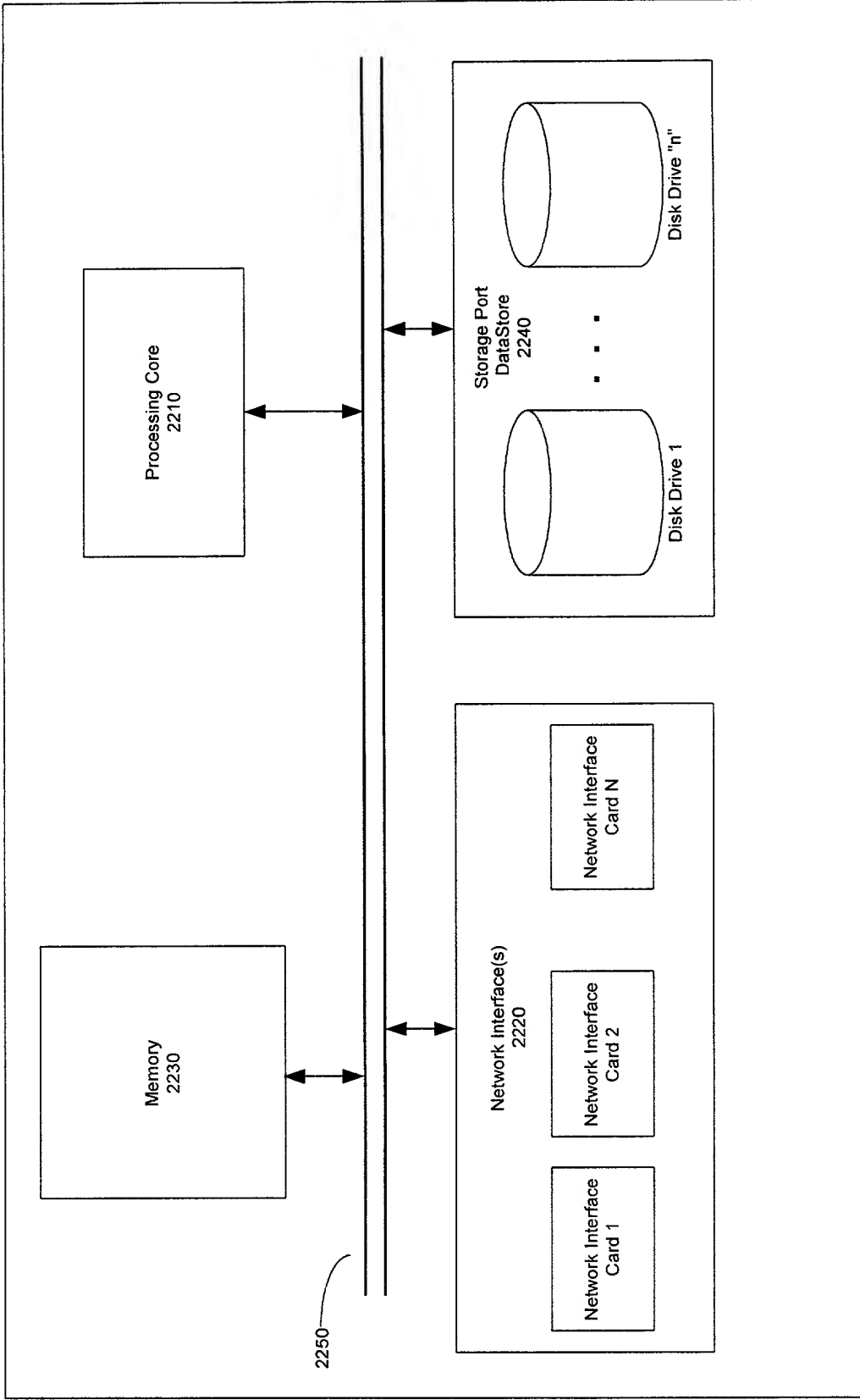


Figure 22

2300

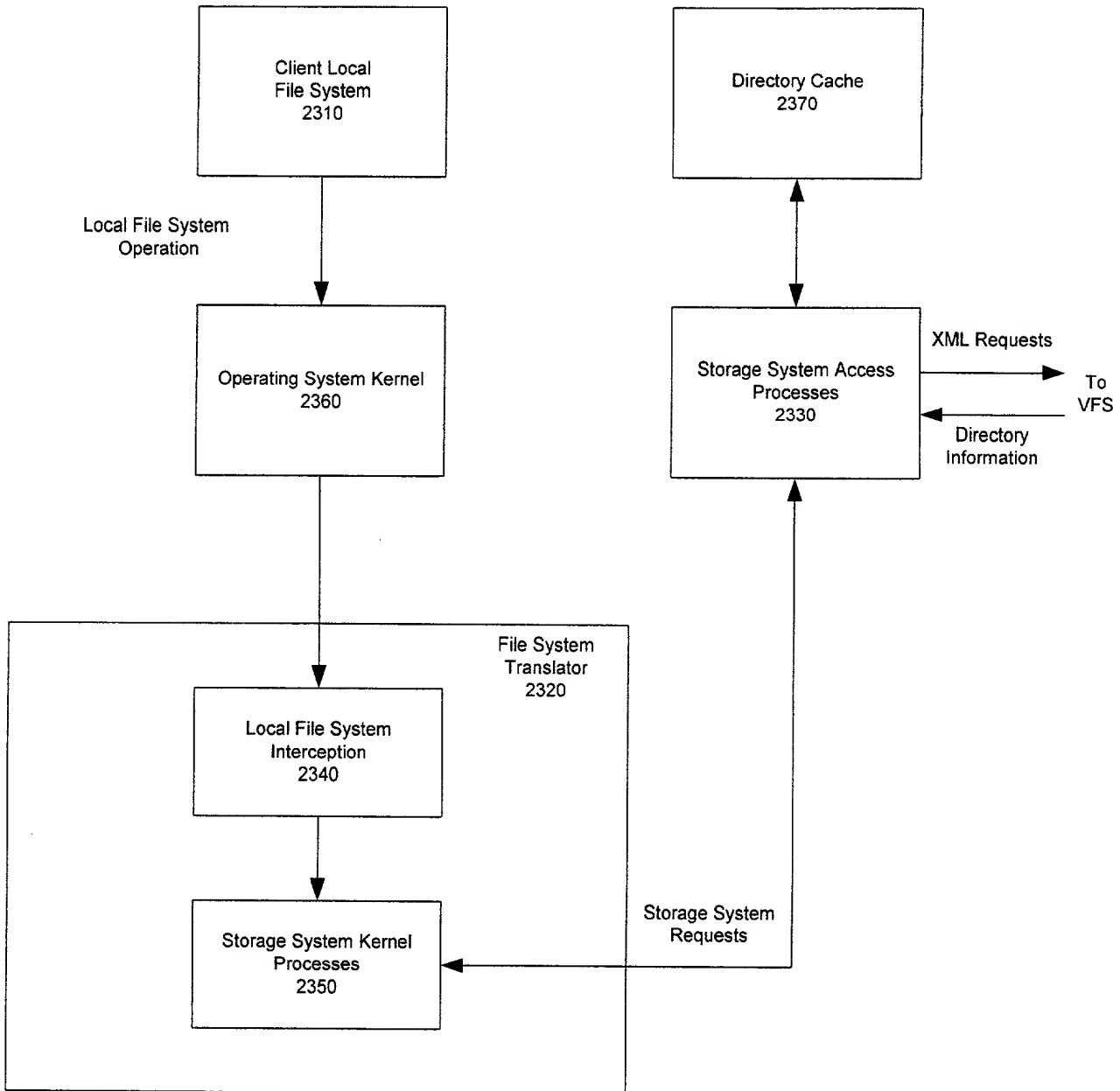


Figure 23

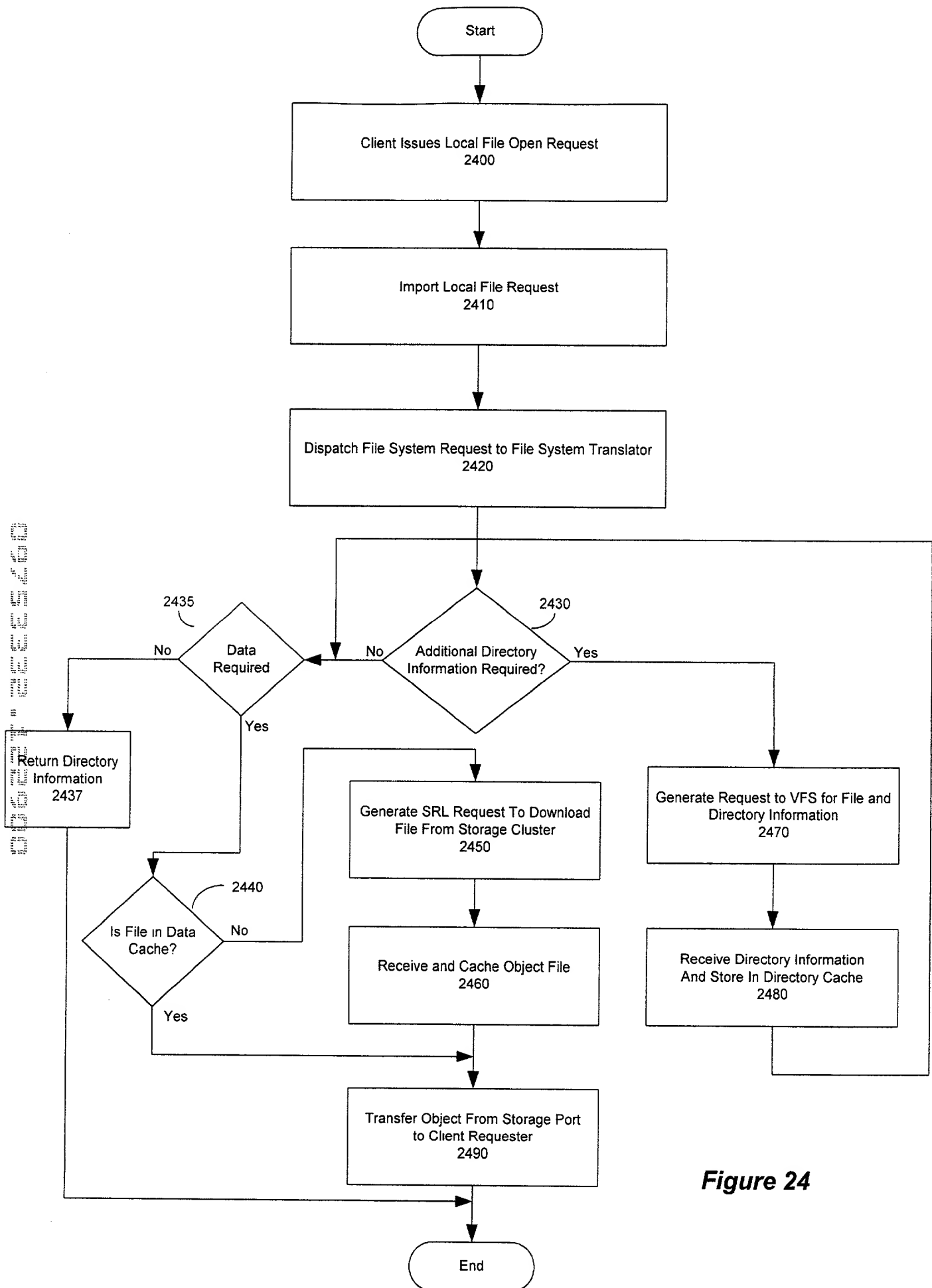


Figure 24

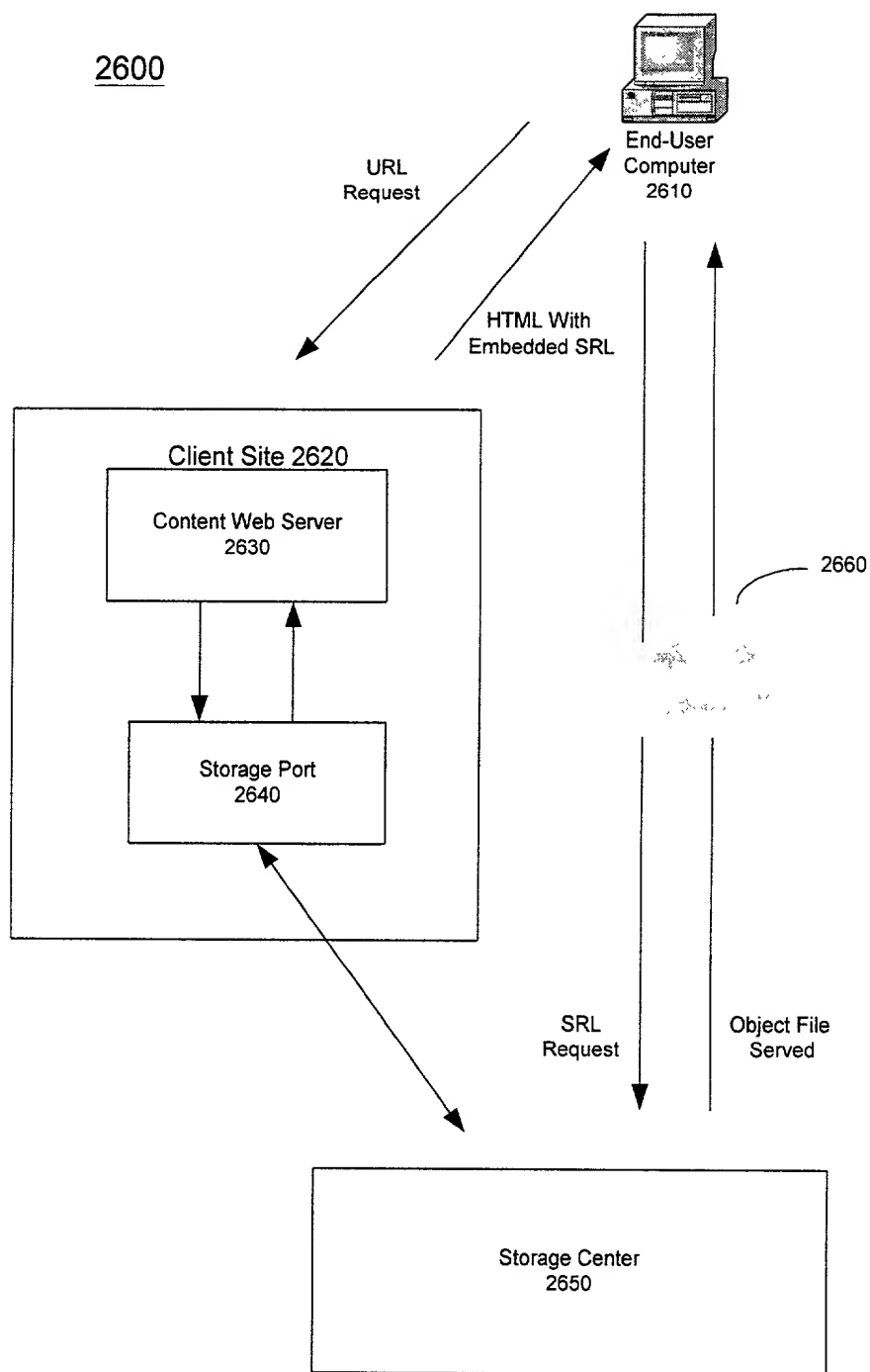


Figure 25

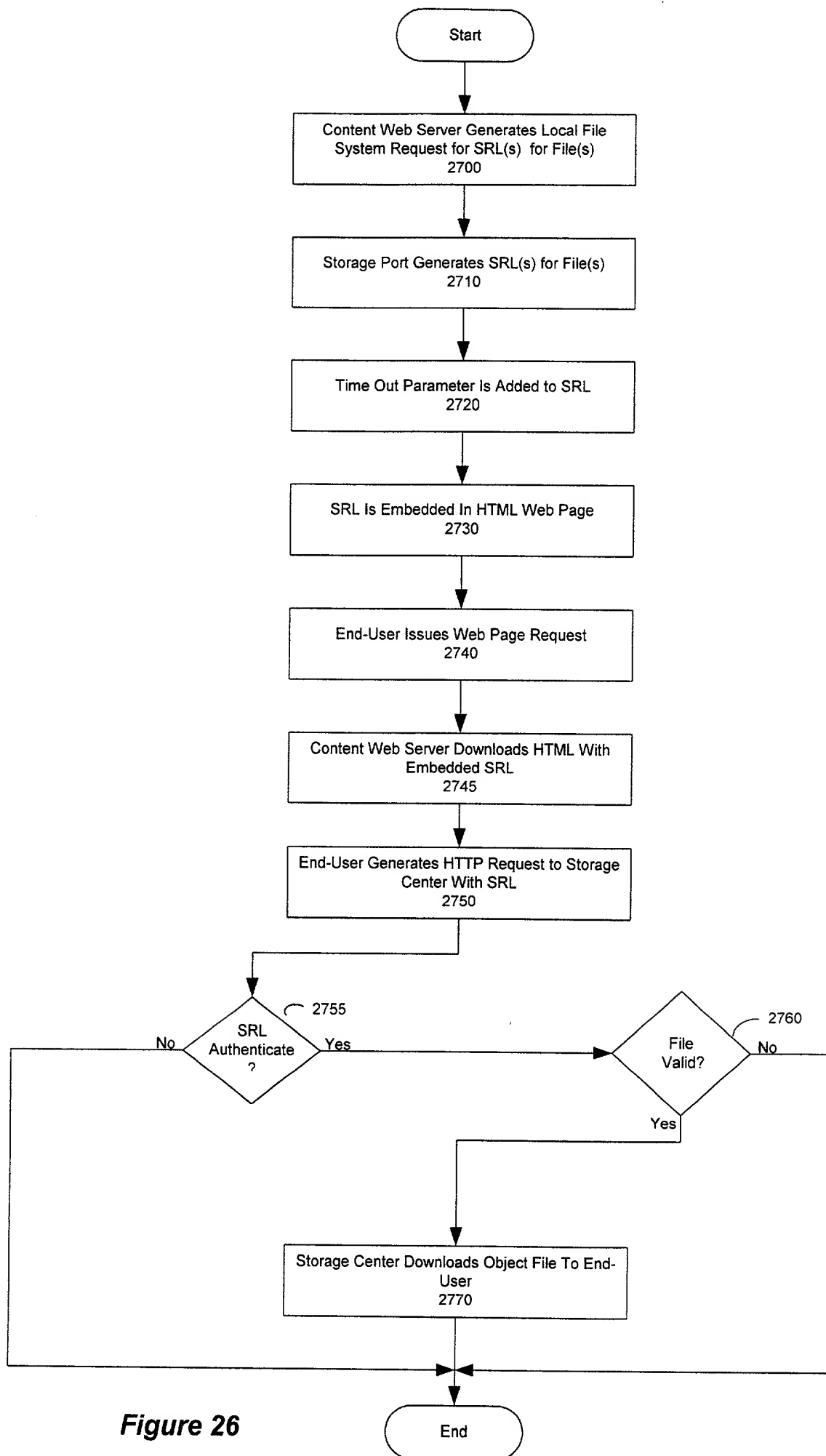


Figure 26

FIG. 27 is a block diagram of a system architecture for a client site and a storage center. The client site 2820 includes a content web server 2830 and a private file manager 2840. The storage center 2850 is connected to the private file manager 2840. An end-user computer 2810 is connected to the content web server 2830. The system is labeled 2800.

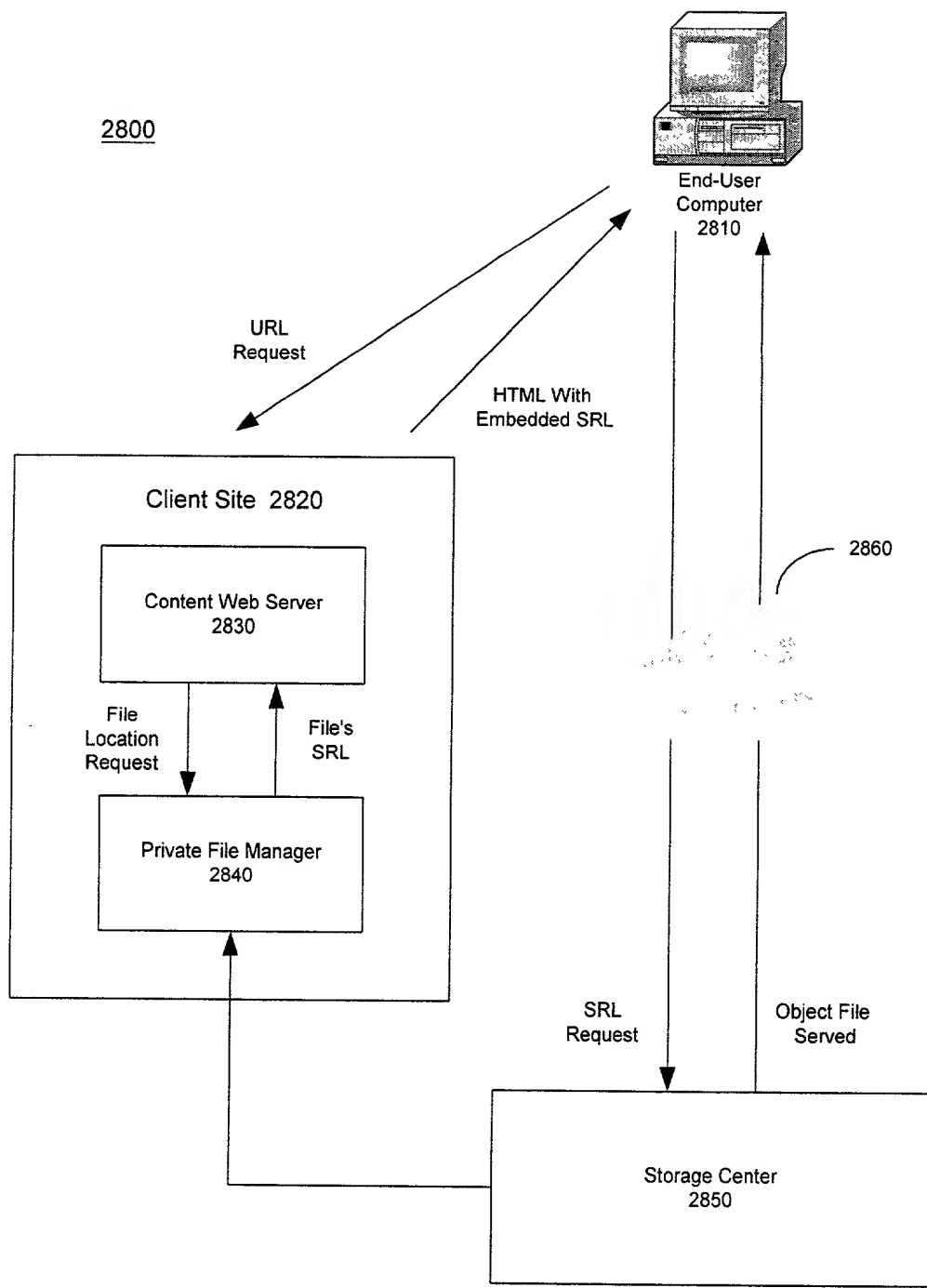


Figure 27

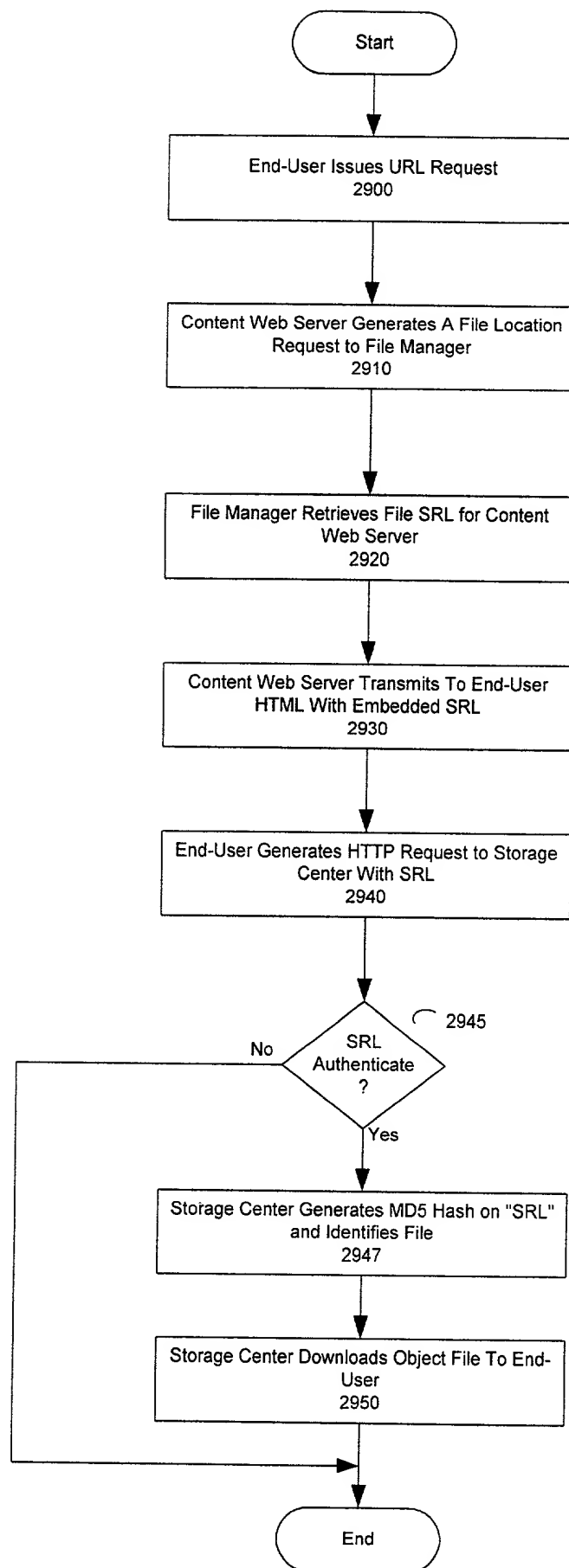


Figure 28

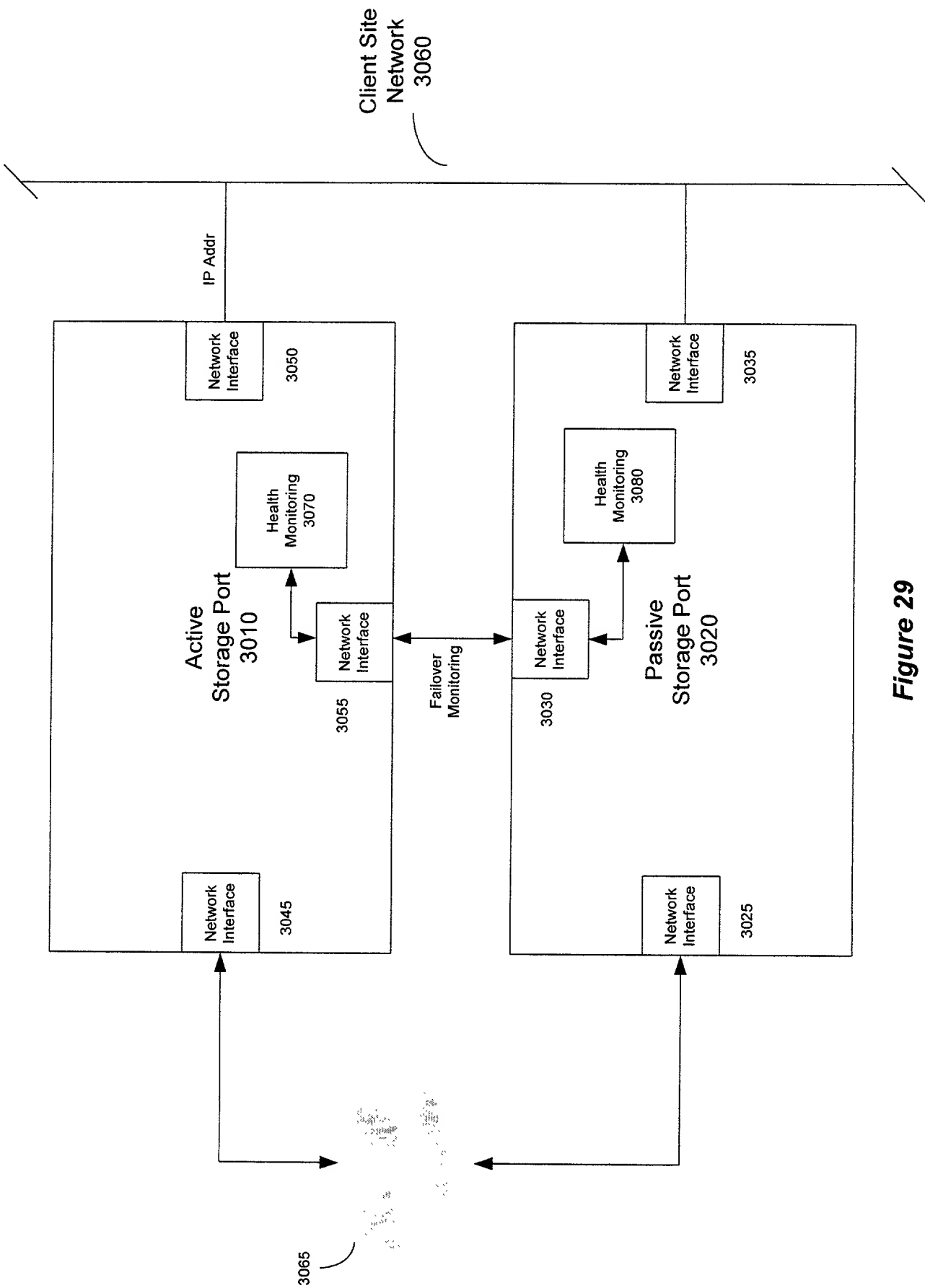


Figure 29

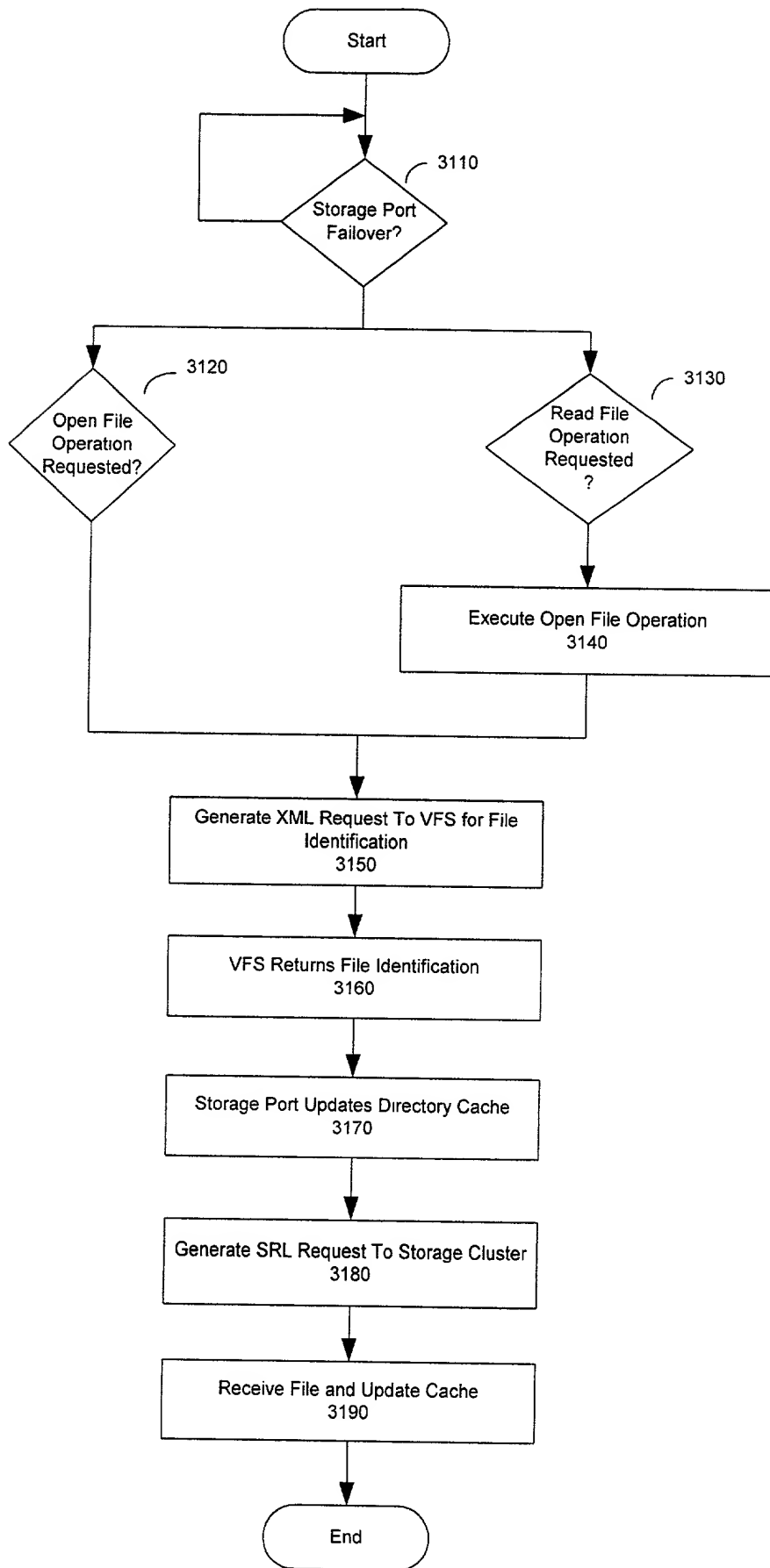


Figure 30

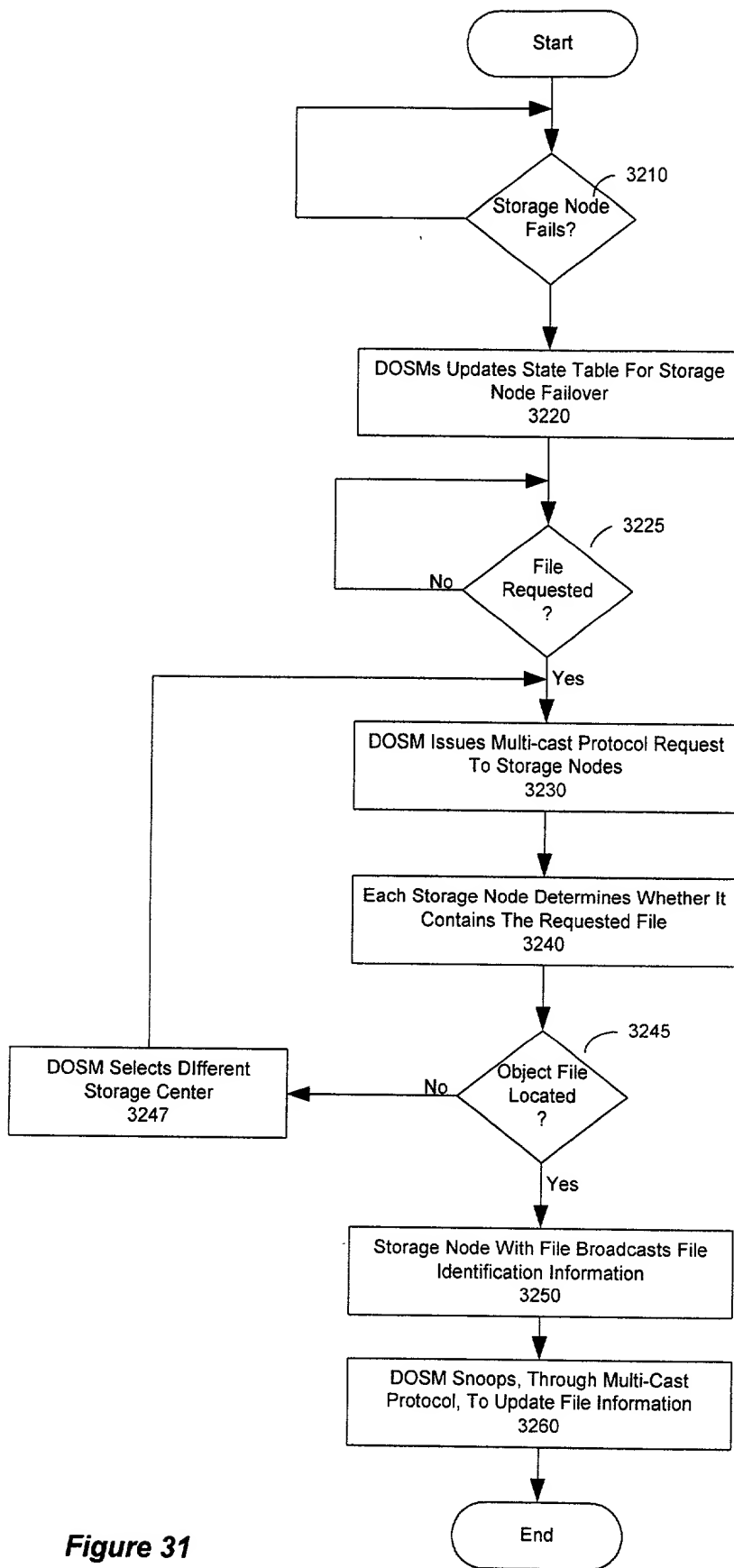


Figure 31